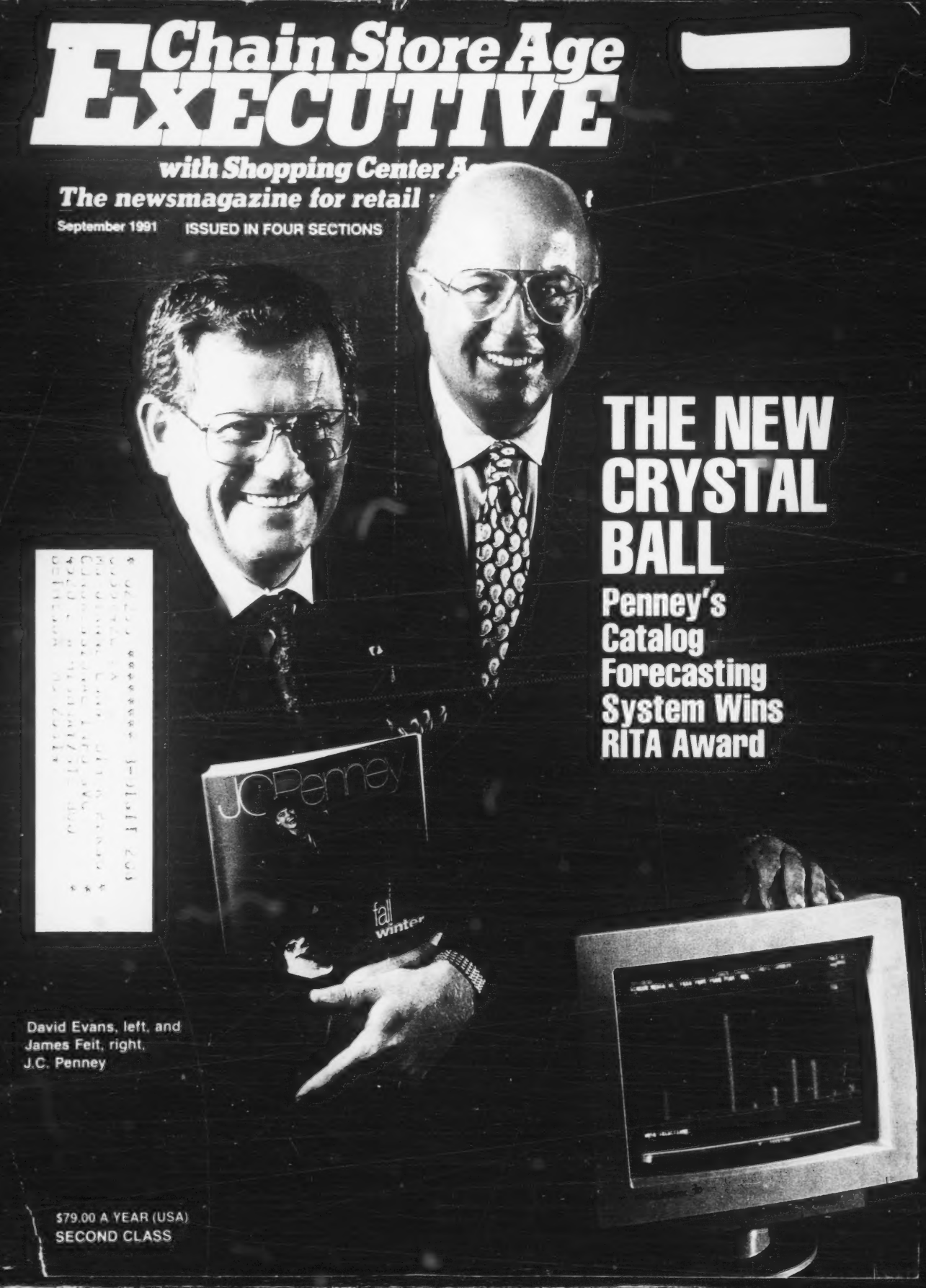
Chain Store Age EXECUTIVE

with Shopping Center A

The newsmagazine for retail

September 1991 ISSUED IN FOUR SECTIONS



THE NEW CRYSTAL BALL

Penney's Catalog Forecasting System Wins RITA Award

David Evans, left, and James Feit, right, J.C. Penney

$79.00 A YEAR (USA)
SECOND CLASS

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DIRECT MARKETING FACES HURDLES

POSTAL, TAX COLLECTION PROBLEMS GET IN THE WAY OF GROWING INDUSTRY

Debby Giardino, who lives in a Brooklyn, N.Y., apartment house, doesn't like scraping her knuckles when she pulls three or four catalogs, like L. L. Bean, Lands' End or Lillian Vernon from her tiny mailbox. But that's the only thing about direct mail she doesn't like.

She likes to leaf through each one but, mostly, she likes the convenience of phoning or mailing in an order from the comfort of her home.

Betsy Jaeger, a marketing director of a New York-based accounting firm, however, gets no benefit from them at all. There are always sales in the Manhattan stores and besides she does a lot of shopping in showrooms that offer sample sales. Her boyfriend, however, commits a lot of bucks to direct mail marketers.

Fortunately for the direct marketing industry, there seem to be more consumers out there like Debby and Betsy's boyfriend than Betsy. Even so, direct mail marketing is an industry loaded with opportunities but facing all sorts of challenges.

On the positive side is the steady growth of the industry boosted by demographics and technology. On the negative side is the increased costs of mailing and a battle by the various states to mandate that catalog houses collect use or sales taxes for them.

One industry analyst, Arnold Fishman in his book *Guide to Mail Order Sales*, estimates that in 1989 consumers spent $87 billion on mail order sales. According to the Direct Marketing Association (DMA), in 1990, 98.6 million adults, or 54.4% of the U.S. population, made a direct marketing purchase. This represents a 59.7% growth since 1983.

Also, according to the DMA, in 1990 there were 13.6 billion catalogs mailed, up a whisker from the 13.4 billion a year earlier, but up a whopping 134.5% over mailings of 5.8 billion in 1980.

DMA defines direct mail as the ". . .targeting of a specific group of consumers most likely to respond to an offer and provide them the opportunity, one-on-one, via the mail, to take advantage of that opportunity."

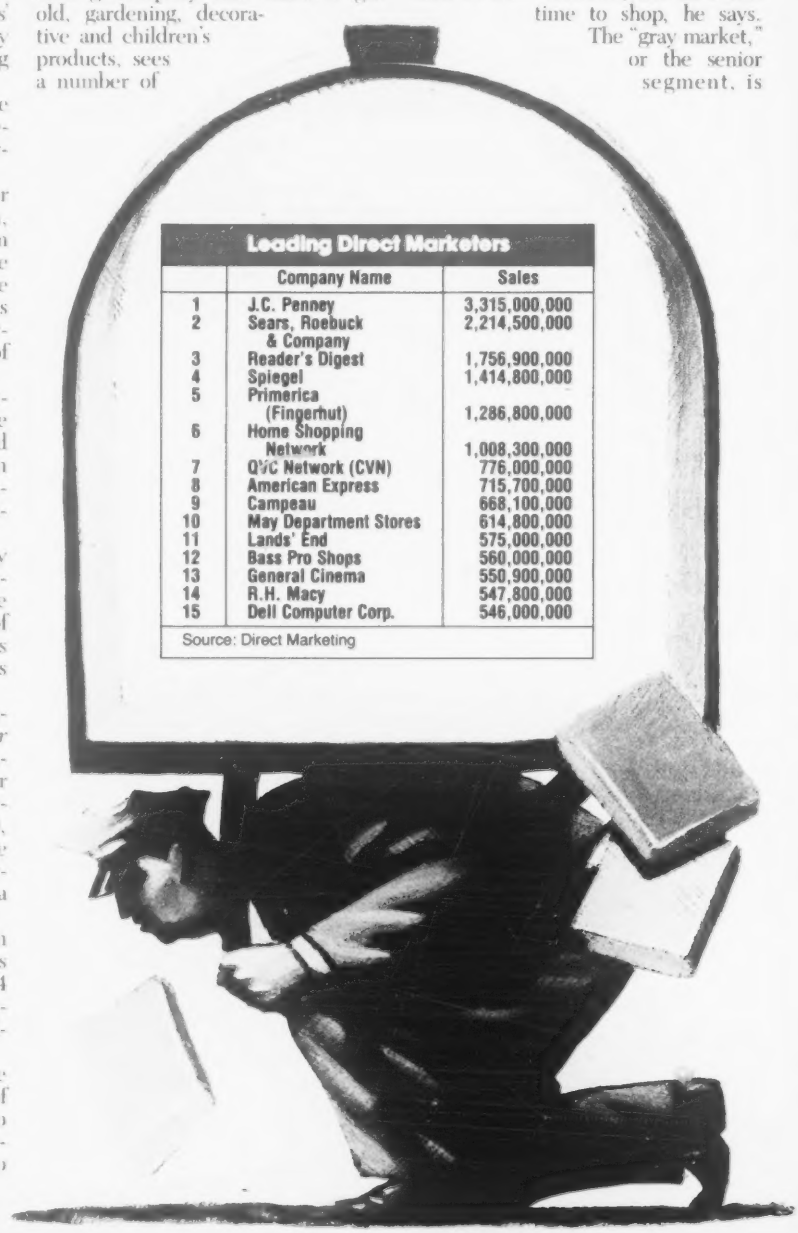
David Hochberg, vp of public affairs for Lillian Vernon, a specialty catalog company that markets gift old, gardening, decorative and children's products, sees a number of opportunities for the industry to grow.

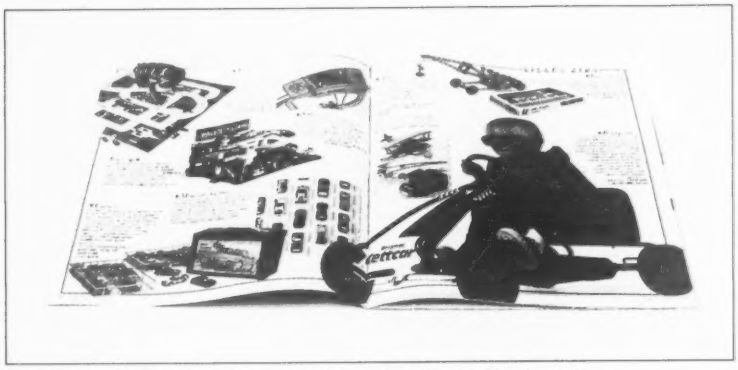
He cites the demographics of the market. More women continue to return to the workforce, but have less time to shop, he says. The "gray market," or the senior segment, is

Leading Direct Marketers

	Company Name	Sales
1	J.C. Penney	3,315,000,000
2	Sears, Roebuck & Company	2,214,500,000
3	Reader's Digest	1,756,900,000
4	Spiegel	1,414,800,000
5	Primerica (Fingerhut)	1,286,800,000
6	Home Shopping Network	1,008,300,000
7	Q'VC Network (CVN)	776,000,000
8	American Express	715,700,000
9	Campeau	668,100,000
10	May Department Stores	614,800,000
11	Lands' End	575,000,000
12	Bass Pro Shops	560,000,000
13	General Cinema	550,900,000
14	R.H. Macy	547,800,000
15	Dell Computer Corp.	546,000,000

Source: Direct Marketing





***Lillian Vernon markets a wide range** of items including children's products.*

growing. It has more disposable income but less mobility.

Hochberg also raises the concern about crime. Some people are afraid to go downtown or to malls and prefer shopping in the safety of their homes. They also like the idea of shopping 24 hours a day, seven days a week, he says.

Another feature is technology, he says. Years ago catalog shoppers had to wait two, three or four weeks for delivery. "Now computing powers are so sophisticated, warehouses are so high-tech, we can ship orders in 24 hours, and with Federal Express delivery we can offer immediacy," says Hochberg.

Still another factor in technology is that the data base allows more efficient niche marketing. "Now we can look at our data base and see who has children and who has a garden," he says. "We can target our catalog offerings to those customers."

Lillian Vernon's data base totals more than 12 million names, of which 5.4 million have purchased from the company within the past two years. It shipped more than 4.3 million orders in the last fiscal year. The average item in its catalog retails for $17. Its average customer order is $38.

In the fiscal year ended Feb. 23, it reported earnings of $9.2 million on revenues of $160.3 million.

In addition to these developments, DMA adds two others: development of the toll-free phone numbers, and advent of the credit card.

But while most of the data about the industry seem to be upbeat, lurking in the bushes trying to ambush the industry are the spiraling costs of postal rates and more than 30 states that want the catalog issuers to collect use or sales taxes for the states on every order.

***Direct marketing is growing** but facing many challenges.*

Lillian Vernon collects taxes in just two states, Virginia and New York

DMA thinks the effort by many state legislatures to impose or expand use or sales tax collection obligations is so threatening that it has a full-time director of use tax communications, Chris E. Armenante.

Over the past five years, legislatures in over 30 states have passed laws requiring that out-of-state catelog or direct mail companies collect their use taxes, she says.

George S. Isaacson, a partner in the law firm of Brann & Isaacson, Lewiston, Maine, points out that the U.S. Constitution's Due Process Clause and Commerce Clause have been interpreted by the U.S. Supreme Court as imposing a restriction on the power of individual states to extend their taxing and regulatory authority beyond their own state borders.

The court's reasoning, he says, is threefold: Before a state can exert its authority over an out-of-state company, the company should have some minimum contact (nexus) in the state; there should be a reciprocal benefit to the company for collecting the tax; and the Common Clause and Due Process clause were intended to create and maintain free trade among the states.

In 1967, the U.S. Supreme Court ruled in the case of National Bellas Hess v. Illinois Department of Revenue that the mere mailing of catalogs to prospective customers and the subsequent delivery of goods through the U.S. Mail and by other common carriers doesn't constitute sufficient nexus to require the direct marketer to collect the state sales or use tax.

Fortunately for the industry, according to DMA's Armenante, most courts today still think National Bellas Hess is a good ruling.

However, she says, states have been picking away at the ruling by inventing new and imaginative theories of nexus.

Among these are the 1 (800) telephone number plus customer use of credit cards issued by in-state banks. Some states have said that if a direct mail company offers a money-back guarantee, that involves nexus because it still owns the property until the consumer's unconditional guarantee and right-of-return period expire.

Some 20 states have sent notices to direct mail people pressuring them to collect the sales or use taxes, she says. The two most aggressive states, she says, are California and Tennessee.

Lillian Vernon, says Hochberg, collects taxes in just two states, Virginia and New York, in which it technically has two facilities.

According to Isaacson, some tax administrators have argued that the waste disposal burden on local governments justifies imposing tax collection duties on mail order companies. To date, he adds, state courts have generally rejected such new economy claims of nexus. He cited L. L. Bean v. Pennsylvania (1986), and Bloomingdale's By Mail v. Pennsylvania (1989).

He also noted recently the Califor-

nia Superior Court granted summary judgment to Sturbridge Yankee Workshop in a use tax collection case where the State Board of Equalization argued that nexus existed merely because California customers paid for the purchases utilizing credit cards issued by California banks.

This is a state "test" case sponsored by DMA. The California Superior Court ruled similarly in a case involving Lands' End. The Board of Equalization is planning to appeal both decisions, Isaacson says.

The DMA has sued in a couple of instances in state courts. It has lost twice in Tennessee and another in North Dakota, Armenante says, but in two Connecticut cases, the U.S. Supreme Court refused to review the decisions favorable to the marketers which, she says, is a victory for the industry. The North Dakota case has been appealed to the Supreme Court. If it is accepted, Armenante says, it will be on the docket in the spring of 1992. "The situation is sort of in a flux right now," she says.

Also in a state of flux is the postage rate situation, according to Anthony Giacchetto, DMA publicist. In February, the Postal Rate Commission raised first class stamps to 29 cents and, at the same time, raised third class mail—used by catalog houses—anywhere from 25% to 40%. In March, however, the Postal Board of Governors, which has the final say, rejected the new rates, recommending that first class stamps be upped to 30 cents. This leaves third-class mail up in the air, according to Giacchetto, saying that, "Naturally, DMA wants first class rates to go up to 30 cents and third class rates to be lowered."

A DMA fact sheet says that since 1980, the income generated by third-class mail to U.S. Postal Service annual revenue has increased more than 235%—from $2.4 billion in 1980 to $8.1 billion in 1990. In 1990 more than 20% of USPS revenue was generated by third-class mail.

Catalog shopping can be dated back to colonial days when Benjamin Franklin printed a catalog offering nearly 600 books in 1744. The modern era of mail order, however, dates back to 1872 when Aaron Montgomery Ward published his first catalog listing 163 items, most priced at $1. This was soon followed by Richard Warren Sears who sold watches by mail order in 1886. ■

—Stanley H. Slom

***Bright colors and bold graphics** give stores a stylish and contemporary look.*

WHEREHOUSE TAKES OFF

MUSIC/VIDEO CHAIN ON FAST-FORWARD

The recession might have slowed Wherehouse Entertainment down a bit, but it hasn't taken the wind out of its sales completely. With annual sales at nearly $500 million, the Torrance, Calif.-based music and video chain continues to pursue an aggressive growth strategy.

"We are concentrating our efforts on building our existing market share," says Bruce Jesse, vice president of advertising and sales promotion, Wherehouse Entertainment, which operates 295 stores. The majority of its units are located in California, with the balance located in five other western states (Colorado, Washington, Oregon, Nevada and Arizona).

Founded in 1970, Wherehouse underwent a leveraged buyout in 1988 by Adler & Shaykin. The New York-based financial firm was invited in as a white knight by company management. Wherehouse's five-year plan, developed shortly after the buyout, calls for an aggressive growth strategy with 160 new stores. Despite the recession, the chain expects to open 30 new stores annually over the next several years.

"Southern California has been hit hard by the recession and we have felt the impact like everyone else," says Jesse. "But we are optimistic about the future. Our business is very much title-driven. One big release can really drive sales. With albums upcoming from Bruce Springsteen, Guns n' Roses and U2 among others, we feel there is a lot of good music in the pipeline."

Already a dominant player in California, Wherehouse plans to continue to shore up its existing markets in the West. The retailer has no immediate plans to move east.

"We are not interested in growth merely for growth's sake," says Jesse. "Wherehouse is not going to take off for Iowa, for example, just because the real estate is cheap. There is still plenty of opportunity in the West for growth and that is where we are focusing our efforts."

Restricted growth: High visibility is among the many benefits the company says it has received from its strategy of restricted growth. New stores benefit from the high recognition factor the chain enjoys among shoppers.

"Our dominant position also gives us increased leverage with vendors," Jesse explains. "And by clustering our stores in specific markets, we are able to maximize our advertising and promotion campaigns."

Advertising and promotions are an integral part of the chain's overall business strategy. A high-profile retailer, Wherehouse will spend more than $26 million in advertising this year.

Multi-media ad campaigns and high-energy promotions have be-

RETAIL SALES RISE IN JULY, BUT BARELY

ONLY WAL-MART, THE GAP SHOW REAL MUSCLE

The recovery, when it comes, is likely to be a weak one—much weaker than the average since World War II.

That's the conclusion of many analysts in the wake of the release of July retail sales figures. The Department of Commerce reported that spending picked up about 0.5%—indicating growth but also continued caution on the part of consumers.

Only Wal-Mart, now the nation's largest retailer, and The Gap, the strong specialty apparel chain, were capable of decisively bucking July's trend.

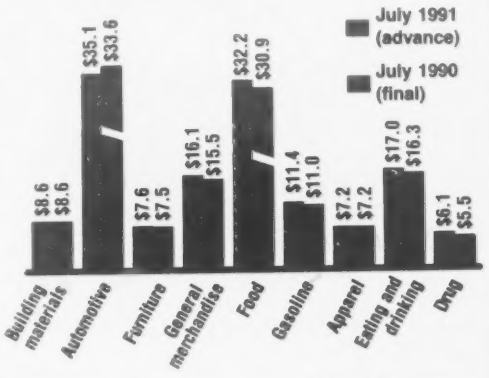
Wal-Mart finished the month with a 40% sales increase, and a 13% same-store increase. The Gap posted a 34% increase and a 14% same-store increase.

Consumer doubts about the economy hit hard at Sears, Roebuck & Co. where sales of hard goods such as appliances and furniture were badly depressed. Same-store sales at Sears were down 2.1% for the month and 2.6% for the first six months of the fiscal year.

Kmart posted only a 0.4% gain in same-store sales for July, although same-store sales for the year to date improved 4.1%.

JULY SALES

(Seasonally adjusted, figures in billions)



Source: U.S. Department of Commerce

CHAIN PERFORMANCE

Company	July '91 sales (000)	% change	% change comp. stores	YTD sales (000)	% change YTD	% change YTD comp. stores
Wal-Mart	$3,358,000	+40.0	+13.0	$19,621,000	+37.0	+11.0
Kmart	2,304,800	+ 5.9	+ 0.4	15,578,700	+ 9.5	+ 4.1
Sears	2,191,100	− 1.2	− 2.1	13,889,100	− 1.7	− 2.6
Penney	984,000	− 2.2	− 3.0	6,317,000	− 4.1	− 5.3
Dayton Hudson	1,060,000	+ 7.3	+ 2.7	6,790,000	+10.3	+ 1.4
May	656,700	+ 8.6	+ 0.4	4,690,000	+ 7.5	− 0.8
Melville[1]	665,493	+20.0	+ 0.1	5,127,317	+20.9	+ 0.6
Walgreen[5]	554,990	+12.8	+ 9.0	3,866,773	+11.5	+ 7.4
Woolworth	397,000	+ 1.8	− 3.2	2,565,000	+ 3.1	− 1.5
The Limited	398,400	+14.0	+ 1.0	2,660,000	+18.0	+ 4.0
Mercantile	154,742	+ 3.0	+ 1.6	1,070,242	+ 4.9	+ 2.6
Circuit City[2]	212,000	+16.0	N/C	N/R	N/R	N/R
The Gap	153,000	+34.0	+14.0	1,013,000	+26.0	+ 9.0
Rose's	95,612	N/R	+ 7.4	665,127	N/R	+ 0.3
Neiman-Marcus Group[3]	119,900	+ 3.4	− 1.6	1,745,800	+ 4.8	− 0.8
Venture Stores	96,700	+ 1.1	− 1.1	653,800	+ 8.4	+ 4.5
Edison Bros.	94,500	+ 8.0	N/R	615,100	+18.1	N/R
Jamesway	51,200	N/C	+ 4.0	381,400	− 1.0	− 1.0
Charming Shoppes	69,000	+10.0	+ 2.0	478,000	+16.0	+ 9.0
Ross	71,000	+18.0	+ 2.0	431,000	+18.0	N/R
Dollar General	57,000	+14.5	+10.1	319,800	+12.6	+ 8.2
Best Buy[4]	59,000	+23.0	−11.0	294,000	+28.0	+ 9.0
Gottschalks	21,100	+10.9	+ 6.1	133,700	+17.3	+ 7.4
Claire's	19,230	+ 9.0	− 7.0	116,444	+ 7.0	− 7.0

[1]fiscal year ends Dec. 31 [2]fiscal year ends Feb. 28 [3]fiscal year ends July 31 [4]fiscal year ends Mar. 31 [5]fiscal year ends Aug. 31 N/R = not reported N/C = no change

Source: Company reports

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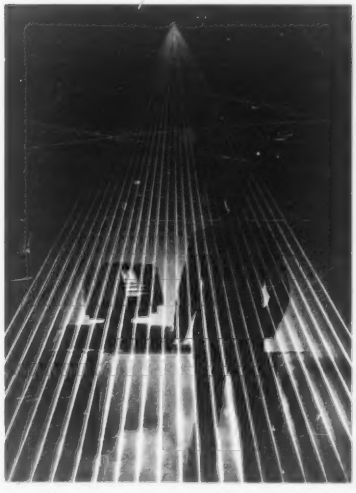
September 1991/Section 2

10th Annual Survey of
Chief Information Officers
in the Retail Industry

Ernst & Young's Survey of Retail Information Technology Expenses and Trends



Thought Leadership Series

ERNST & YOUNG

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September 1991

Dear Retailer,

With this survey report, Ernst & Young has reached a milestone: 10 years of reporting expenses and trends in the most dynamic, fast-changing area of retail. This report also marks the second anniversary of Ernst & Young's partnership with *Chain Store Age Executive* to conduct the survey jointly.

A total of 154 companies participated in this year's survey: 13 convenience store chains, 17 department stores, 17 general merchandise/mass merchants, 20 specialty apparel companies, 25 specialty hardlines retailers, 25 specialty "other" companies, 20 supermarket/grocery chains, and 17 drug/mail order/direct mail or other retailers.

There were 50 companies with annual sales of less than $100 million, 49 companies with revenues between $100-$399 million, 22 companies in the $400-$999 million range, and 33 companies with annual revenues of $1 billion or more.

This year's survey covers several new areas of technology use, including expert systems, local area networks, and human resources technologies, and for the first time covers them in terms of their function in an organization. It also features profile stories on database marketing and telecommunications, and a discussion of some of the current trends in the industry, notably downsizing and outsourcing.

We would like to thank the exclusive advertising sponsor, GTE Spacenet. And we thank the 154 retailers who took the time to fill out survey questionnaires. Without their cooperation, this study would not have been possible.

Stephanie M. Shern
Partner & National Director,
Retail Industry Services
Ernst & Young

Murray Forseter
Associate Publisher/Editor
Chain Store Age Executive

1. Highlights and Methodology

The soft retail economy has cast a long shadow across this year's survey. Downsizing is under consideration at 63 percent of the organizations surveyed. The outsourcing of at least one IS function is a likelihood at 20 percent of participating companies. And cost control, meeting tight deadlines, and producing more with less were the top concerns of 24 percent of the IS department heads.

The survey also shows, however, that before business conditions intruded, IS expenses and expenditures were rising. Expenses averaged .80 percent of sales in 1990, up from .75 in 1989. And capital expenditures in-creased almost 16 percent (3.4 percent on a same-respondent basis).

As you read this survey, please keep the following points in mind:

The pool of retailers who participate in this survey changes from year to year. Therefore, it may not be accurate to compare data published in this report to data in past surveys.

Some participants did not answer every question. Therefore, it may not be accurate to compare data in one table to data in another table. Questionnaires that were substantially incomplete were not tabulated.

Because some of the questions allowed multiple answers, tallied responses do not always total 100 percent.

The individual participant data is confidential; survey responses were received and reviewed only by Ernst & Young.

IS EXPENSES AS A PERCENT OF SALES

	1990			1989		
	Total = Company	Not allocated out of IS + dept.	Allocated to other depts.	Total = Company	Not allocated out of IS + dept.	Allocated to other depts.
All participants	0.80%	0.65%	0.15%	0.75%	0.61%	0.14%
	(124)	*(124)*	*(124)*	*(119)*	*(119)*	*(119)*
Convenience stores	0.52%	0.52%	0.00%	0.42%	0.42%	0.00%
	(9)	*(9)*	*(9)*	*(7)*	*(7)*	*(7)*
Department stores	0.87%	0.74%	0.13%	1.01%	0.86%	0.15%
	(12)	*(12)*	*(12)*	*(12)*	*(12)*	*(12)*
Mass merchants	0.64%	0.52%	0.12%	0.63%	0.52%	0.11%
	(14)	*(14)*	*(14)*	*(12)*	*(12)*	*(12)*
Specialty apparel	1.04%	0.91%	0.13%	0.98%	0.85%	0.13%
	(19)	*(19)*	*(19)*	*(19)*	*(19)*	*(19)*
Specialty hardline	0.79%	0.58%	0.21%	0.76%	0.51%	0.25%
	(21)	*(21)*	*(21)*	*(20)*	*(20)*	*(20)*
Specialty other	1.12%	0.82%	0.30%	0.87%	0.65%	0.22%
	(23)	*(23)*	*(23)*	*(24)*	*(24)*	*(24)*
Supermarket/grocery	0.37%	0.26%	0.11%	0.34%	0.26%	0.08%
	(15)	*(15)*	*(15)*	*(13)*	*(13)*	*(13)*
Drug/mail order/ direct mail/other	0.62%	0.60%	0.02%	0.60%	0.57%	0.03%
	(11)	*(11)*	*(11)*	*(12)*	*(12)*	*(12)*

( ) = Number of responses to this question.

SURVEY DEMOGRAPHICS

(Note: All $ in millions)	All Participants		Averages for Participants by 1990 Sales Vol. in $ Mills.			
	Total	Average	Under $100	$100-$399	$400-$999	$1,000 or more
ALL PARTICIPANTS:						
1990 sales	$170,992	$1,110	$53	$194	[illegible]	$4,383
	(154)	*(154)*	*(50)*	*(49)*	[illegible]	*(33)*
Average 1990 Gross Profit %	-	28.5%	30.1%	31.7%	[illegible]	23.4%
	-	*(122)*	*(38)*	*(43)*	*(19)*	*(22)*
CONVENIENCE STORES:						
1990 sales	$3,519	$271	$45	$145	$498	$1,674
	(13)	*(13)*	*(6)*	*(4)*	*(2)*	*(1)*
Average 1990 Gross Profit %	-	21.1%	15.9%	23.2%	41.1%	19.0%
	-	*(11)*	*(5)*	*(4)*	*(1)*	*(1)*
DEPARTMENT STORES:						
1990 sales	$23,69	$1,394	$67	$231	$660	$6,972
	(17)	*(17)*	*(8)*	*(4)*	*(2)*	*(3)*
Average 1990 Gross Profit %	-	36.6%	35.5%	38.4%	41.0%	33.3%
	-	*(11)*	*(6)*	*(3)*	*(1)*	*(1)*
MASS MERCHANTS:						
1990 sales	$54,908	$3,230	$92	$217	$611	$8,598
	(17)	*(17)*	*(2)*	*(6)*	*(3)*	*(6)*
Average 1990 Gross Profit %	-	21.1%	33.4%	14.1%	22.5%	22.6%
	-	*(14)*	*(2)*	*(5)*	*(3)*	*(4)*
SPECIALTY APPAREL:						
1990 sales	$5,983	$299	$50	$165	$745	$1,734
	(20)	*(20)*	*(9)*	*(8)*	*(1)*	*(2)*
Average 1990 Gross Profit %	-	37.9%	37.6%	38.2%	-	-
	-	*(16)*	*(8)*	*(8)*	-	-
SPECIALTY HARDLINES:						
1990 sales	$12,528	$501	$60	$199	$686	$1,843
	(25)	*(25)*	*(7)*	*(10)*	*(4)*	*(4)*
Average 1990 Gross Profit %	-	28.0%	34.6%	28.8%	23.7%	23.6%
	-	*(22)*	*(4)*	*(10)*	*(4)*	*(4)*
SPECIALTY OTHER:						
1990 sales	$7,434	$297	$35	$197	$573	$1,509
	(25)	*(25)*	*(10)*	*(9)*	*(4)*	*(2)*
Average 1990 Gross Profit %	-	34.9%	29.7%	49.1%	22.1%	36.7%
	-	*(23)*	*(10)*	*(7)*	*(4)*	*(2)*
SUPERMARKET/GROCERY:						
1990 sales	$44,307	$2,215	$65	$200	$660	$4,087
	(20)	*(20)*	*(3)*	*(3)*	*(4)*	*(10)*
Average 1990 Gross Profit %	-	20.1%	22.0%	25.1%	22.6%	16.2%
	-	*(14)*	*(2)*	*(2)*	*(4)*	*(6)*
DRUG/MAIL ORDER/DIRECT MAIL/OTHER:						
1990 sales	$18,623	$1,095	$53	$206	$794	$3,148
	(17)	*(17)*	*(5)*	*(5)*	*(2)*	*(5)*
Average 1990 Gross Profit %	-	22.1%	5.0%	24.8%	15.7%	26.8%
	-	*(11)*	*(1)*	*(4)*	*(2)*	*(4)*

( ) = Number of responses to this question.

Technology Trends in Retail: An Executive Overview

Technology Trends in Retail: An Executive Overview

Ten years ago, when Ernst & Young conducted its first study of information technology expenses and trends, retailers viewed technology solely as an enhancement to their business. Retailers were talking about the advantages of automated inventory control, for example, and point-of-sale systems were on the drawing boards at 24 percent of all survey participants.

Today, technology is no longer just an adjunct. It is integrated into every functional area of a retailer's business, from human resources to logistics management. And increasingly, as we see with executive information systems, it is reaching into the highest levels of a retail organization. But beyond that, executives themselves are beginning to view information technology as a key strategic tool. Indeed, they are recognizing that a company can be transformed strategically by information technology, and they are looking to link their IT strategy with their overall business strategy.

From value-added enhancement to a prominent position at the very top of a retail organization. This is a long way for technology to travel, and in truth, it has yet not reached this pinnacle in many retail companies. But this is clearly the way it is headed, and inevitably, this concept will be accepted by most retailers, from the most progressive to the most traditional.

Recession clouds the picture

Unfortunately, there is a significant obstacle standing in the way of IT progress: the retail economy. Last year's slump in retail sales has wounded a good many companies, and as our survey shows, it has also exacerbated the concerns of an already cost-conscious industry. As a result, downsizing is a major theme of this year's survey—a theme we see reverberating throughout the industry.

Some 63 percent of the survey respondents said they were considering downsizing their IS departments in fiscal 1991, and the chief concerns of IS department heads were cost control, meeting tight budgets, and producing more with a downsized staff.

Why downsizing? Most respondents considering downsizing (54 percent) cited business conditions, though a large group (37 percent) pointed to increased operational efficiency and increased price performance of hardware as reasons for downsizing. Indeed, many companies have tried to make mainframe systems work with limited success, and they have determined that moving to mid-range systems, or client-server architecture, can increase functionality and flexibility while lowering costs by as much as 50 percent.

For many retailers, then, downsizing will be a matter of changing hardware. (In our survey, it was 33 percent.) A large group of respondents (23 percent) will simply reduce IS capital expenditures, while another 22 percent will reduce headcount.

Outsourcing on the rise

But another large group, 20 percent, will "downsize" through outsourcing. Outsourcing is an increasingly popular alternative for some retailers, according to many insiders, including Carl Dragstedt, manager, retail market development for IBM. "We created an outsourcing arm, ISSC, over a year ago, and the activity level at the time was almost nonexistent. Now, our group is busy—very busy.

"We think this is a big area for our company," he continues. "By our rough estimations, we think 20-25 percent of [all] retailers would be candidates for outsourcing."

Dragstedt says the best candidates are those companies with aging sys-

tems; those companies without the resources to do a "heart transplant" (put in new systems); and those companies who are in a weakened financial position.

"Some of the market was created for us by the mergers and LBOs of the eighties," says Dragstedt. "Some companies were weakened, lost share to category killers and others, and now need to catch up." Other, merged companies, are simply looking to merge their systems—they're seeking economies of scale, as Dragstedt says.

Our survey shows that 62 percent of those companies currently or planning to outsource are outsourcing systems development. Dragstedt confirms that many retailers are indeed coming to ISSC for assistance with their systems applications, particularly their merchandising applications. Outsourcing systems development has several advantages, including control over expenditures, and quality methods/tools and human resources. Some companies now working with CASE tools and information engineering are having difficulties. Outsourcing could reduce the time, cost, and risk associated with this work.

Outsourcing certainly doesn't make sense for all companies. As Dragstedt says, some companies' systems yield a competitive advantage, and they feel they might lose that edge if they outsourced their development. Others have concerns about control and flexibility. Still, there is much to recommend it. If a company is not strong in this area, it makes sense to enter into alliances with people who are. After all, Reebok doesn't manufacture its sneakers. It sticks with its strengths—design and marketing—and leaves the manufacturing to others. If a retailer's expertise is in merchandising, should it really try to master systems development too?

Some areas continue to grow

Despite the tough times in retail, some areas continue to grow. Our survey shows, for example, that payroll costs for systems development are increasing relative to payroll costs for systems maintenance—despite the fact that companies are outsourcing much of their development. This suggests that retailers are investing in Strategic Information Systems Plans and are in the process of rolling them out with new development. This trend should continue, because the cost of maintaining old systems is often too great, especially for the functionality and performance they yield.

Overall, capital expenditures by our survey participants increased 3.4 percent on a same respondent basis, and for the second year in a row these expenditures went largely for point-of-sale devices and controllers. Of course these were 1990 "pre-recession" expenditures, and no doubt companies reduced their outlays when the downturn came. Nevertheless, POS and in-stores systems are growth areas in retail. They are essential to inventory management, which is probably the number-one issue in retail today. And the POS is vital to one of the emerging areas in the industry—database marketing.

As retailers look to capture customer information and tailor their marketing programs to the individual needs of those customers, the POS will play a key role. And as our survey indicates, this area is viable and growing. Of the companies that are capturing customer information at the point of sale, they are using 76 percent of the captured data.

Scanning, another key ingredient in point-of-sale operations, is also trending upward. Some 33 percent are currently scanning for merchandising functions, and many more plan to scan. Also, scanning in the DC/warehouse, while not currently high, shows promise in the future.

Scanning in the store, however, is not as popular an activity as it perhaps should be. Just 41 percent of survey respondents are currently scanning goods in the store, and 42 percent plan to scan. On the plus side, only 17 percent of respondents have no plans to scan in the store.

A reasonably high number of retailers are also making use of human resources technologies, specifically, automated time and attendance systems. Some 33 percent are now using them in the store, 30 percent are using them in the DC, and 15 percent are using them in the corporate office. The majority of companies are still using time cards, however, and it's difficult to understand why. The advantages of the automated systems, as cited by the respondents, are reduced paperwork (92 percent), fewer errors in calculating employees' hours (92 percent), and control over labor costs (78 percent). With labor costs accounting for a large percentage of a retailer's expenses (an average of 15 percent of sales, according to Ernst & Young's 1990 survey, People in Retail), the opportunities presented by these systems are compelling.

The data on decision support/expert systems is disappointing for much the same reason. While expert systems are gaining in popularity, with 19 percent of retailers currently using them in merchandising decisions and six percent using them in the warehouse/DC, an alarmingly high number have no plans to use these systems. Some 52 percent have no plans to use them in merchandising decisions, and 74 percent do not intend to use them in the DC. With labor shortages one of retail's worst problems, it seems these companies are passing on a very attractive opportunity. A number of companies, including Mrs. Fields and Target Stores, are already demonstrating the advantages of expert systems in both the distribution center and the merchandising area.

Emerging technologies

Some of the so-called emerging technologies in telecommunications are lagging behind as well. Some 70 percent of respondents are using the traditional dial-up system for transmitting data to and from the store; 67 percent are using dial-up for transmitting credit authorizations. This system may be adequate now, but as retailers capture more and more data, they are going to find dial-up to be inadequate, and they will need to supplement, or even replace, these systems with such new technologies as Very Small Aperture Terminals (VSAT). Now, only eight percent are using VSAT.

Other emerging technologies are trending upward, however. Some 26 percent of retailers are upgrading their logistics operations by utilizing direct store delivery systems. Twenty-one percent are using frequent customer/buyer programs in their "relationship" marketing efforts. And 20 percent are using customer information management systems toward the same end.

Are retailers on the road to a more automated, efficient future? Clearly, they are, but cost-consciousness and the cruel reality of the recession are undoubtedly keeping many of them from taking the bold steps they need to take.

2. IS Organization and Environment

Sixty-three percent of the respondents were considering downsizing in the coming year (fiscal 1991). Of those companies, 54 percent cited a reaction to business conditions as the reason.

Of those companies considering downsizing, 32 percent plan to do it by outsourcing some IS function. And of those companies currently or planning to outsource, 62 percent plan to outsource systems development, 27 percent plan to outsource systems operations, 22 percent plan to outsource end-user computing support, and 20 percent plan to outsource communications/network management.

The average number of full-time employees in a retail IS organization was 63. Department stores had the largest staffs, averaging 161 people, and convenience store chains had a survey-low 11 staffers per company. Overall, the IS departments were comprised of 73 percent staff and 27 percent management. Thirty-seven percent of all employees worked in systems development, 33 percent worked in computer operations, 10 percent worked in technical support, another 10 percent worked in systems maintenance, and five percent worked in communications.

The responsibility for data communications resided with the IS department at 88 percent of the responding companies. Corporate administration was responsible for data at eight percent of the companies, and corporate operations was responsible at five percent. The responsibility for voice communications resided at the IS department at 50 percent of the companies. Corporate administration was responsible for voice at 33 percent of the companies, and corporate operations was responsible at 16 percent. Video communications was the responsibility of the IS department at 32 percent of the respondents. Corporate administration was responsible for video at 30 percent.

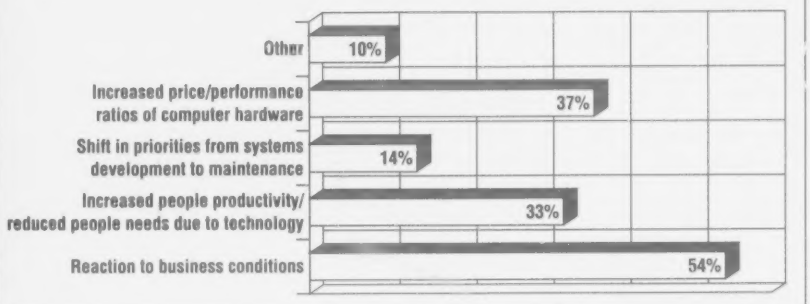
Eighty-two percent of the respondents described their IS organizations as integrated and centrally directed. Fourteen percent said their organizations were both centralized and disbursed.

Only 17 percent of respondents said they had a formal policy to measure productivity. Of that 17 percent, 60 percent measure it by calculating operations up time or down time, 52 percent measure it in lines of code or function points, and 40 percent use benchmarking against other companies.

COMPANIES CURRENTLY CONSIDERING DOWNSIZING

	Participants by 1990 Sales Volume in $ Millions				
	All Participants	Under $100	$100-$399	$400-$999	$1,000 or more
Number of responses to this question	147	45	48	21	33
Currently considering downsizing	93	25	29	14	25
Reduce headcount	33	11	5	6	11
Outsource some IS function	30	5	8	6	11
Spend less on IS development	22	5	6	6	5
Reduce IS capital expenditures	34	6	12	8	8
Change hardware configuration	49	10	16	6	17
Other	4	-	1	1	2
Not considering downsizing	54	20	19	7	8

REASONS FOR DOWNSIZING (BASED ON 63 RESPONSES)



NUMBER OF FULL-TIME EQUIVALENT (FTE) IS PERSONNEL IN 1990

	Participants by 1990 Sales Volume in $ Mill.				
	All Participants	Under 100	$100-$399-	$400-$999	$1,000 or more
ALL PARTICIPANTS:					
Average number of FTE IS personnel	63	6	17	44	220
	(148)	*(45)*	*(49)*	*(21)*	*(33)*
Number of responses in the following ranges:					
1 to 10	59	38	20	-	1
11 to 25	33	7	18	8	-
26 to 50	19	-	10	4	5
51 to 100	14	-	1	8	5
101 to 200	11	-	-	1	10
Over 200	12	-	-	-	12
CONVENIENCE STORES:					
Average number of FTE IS personnel	11	5	5	35	9
	(11)	*(4)*	*(4)*	*(2)*	*(1)*
Number of responses in the following ranges:					
1 to 10	9	4	4	-	1
11 to 25	1	-	-	1	-
26 to 50	-	-	-	-	-
51 to 100	1	-	-	1	-
101 to 200	-	-	-	-	-
Over 200	-	-	-	-	-
DEPARTMENT STORES:					
Average number of FTE IS personnel	161	5	26	29	749
	(15)	*(7)*	*(4)*	*(1)*	*(3)*
Number of responses in the following ranges:					
1 to 10	7	7	-	-	-
11 to 25	2	-	2	-	-
26 to 50	3	-	2	1	-
51 to 100	-	-	-	-	-
101 to 200	-	-	-	-	-
Over 200	3	-	-	-	3
MASS MERCHANTS:					
Average number of FTE IS personnel	127	5	18	25	328
	(17)	*(2)*	*(6)*	*(3)*	*(6)*
Number of responses in the following ranges:					
1 to 10	3	2	1	-	-
11 to 25	6	-	4	2	-
26 to 50	2	-	1	1	-
51 to 100	-	-	-	-	-
101 to 200	3	-	-	-	3
Over 200	3	-	-	-	3

( ) = Number of responses to this question.

NUMBER OF FULL-TIME EQUIVALENT (FTE) IS PERSONNEL IN 1990- CONTINUED

	Participants by 1990 Sales Volume in $ Mill.				
	All Participants	Under 100	$100-$399-	$400-$999	$1,000 or more
SPECIALTY APPAREL:					
Average number of FTE IS personnel	31	7	21	128	127
	(20)	*(9)*	*(8)*	*(1)*	*(2)*
Number of responses in the following ranges:					
1 to 10	10	6	4	-	-
11 to 25	4	3	1	-	-
26 to 50	3	-	3	-	-
51 to 100	1	-	-	-	1
101 to 200	2	-	-	1	1
Over 200	-	-	-	-	-
SPECIALTY HARDLINES:					
Average number of FTE IS personnel	41	9	14	53	153
	(25)	*(7)*	*(10)*	*(4)*	*(4)*
Number of responses in the following ranges:					
1 to 10	8	5	3	-	-
11 to 25	8	2	5	1	-
26 to 50	2	-	2	-	-
51 to 100	4	-	-	3	1
101 to 200	1	-	-	-	1
Over 200	2	-	-	-	2
SPECIALTY OTHER:					
Average number of FTE IS personnel	34	5	19	58	189
	(24)	*(9)*	*(9)*	*(4)*	*(2)*
Number of responses in the following ranges:					
1 to 10	13	8	5	-	-
11 to 25	5	1	3	1	-
26 to 50	-	-	-	-	-
51 to 100	4	-	1	3	-
101 to 200	1	-	-	-	1
Over 200	1	-	-	-	1
SUPERMARKET/GROCERY:					
Average number of FTE IS personnel	65	7	12	26	108
	(19)	*(2)*	*(3)*	*(4)*	*(10)*
Number of responses in the following ranges:					
1 to 10	4	2	2	-	-
11 to 25	3	-	1	2	-
26 to 50	5	-	-	2	3
51 to 100	2	-	-	-	2
101 to 200	4	-	-	-	4
Over 200	1	-	-	-	1
DRUG/MAIL ORDER/DIRECT MAIL/OTHER:					
Average number of FTE IS personnel	55	6	20	41	144
	(17)	*(5)*	*(5)*	*(2)*	*(5)*
Number of responses in the following ranges:					
1 to 10	5	4	1	-	-
11 to 25	4	1	2	1	-
26 to 50	4	-	2	-	2
51 to 100	2	-	-	1	1
101 to 200	-	-	-	-	-
Over 200	2	-	-	-	2

( ) = Number of responses to this question.

3. IS Planning, Development and Implementation

Some 76 percent of respondents said they produce a written annual plan for IS activity. Of those companies, 49 percent said they produce an annual plan, 29 percent produce an annual and long-range plan, and another 29 percent produce a budget/financial plan only. Ninety-five percent of all these plans are produced in-house.

Sixty-six percent of the respondents have an IS steering committee. The primary role of these committees, at 84 percent of the companies, is to set IS priorities. Some 39 percent of these committees are chaired by the head of IS, 25 percent are chaired by either the company chairman, CEO or COO, and 16 percent are chaired by the CFO or VP of Finance.

Fifty-two percent of respondents are currently using productivity tools in implementing their IS plans. Of those companies, 84 percent are using fourth-generation languages, 30 percent are using code generators, and 46 percent are using upper CASE or lower CASE tools. Fourth-generation languages are predominant among mass merchants and supermarket respondents, and among companies with $1 billion or more in revenues.

4. IS Expenses and Capital Expenditures

Average IS operating expenses in 1990 were $7.8 million, down from $8.0 million in 1989, a 2.1 percent decrease. On a same-respondent basis, average expenses declined by 1.6 percent.

As a percent of sales, IS expenses increased from .75 percent to .80 percent, a 6.7 percent increase. Only department stores saw a decline in expenses as a percent of sales. These respondents' expenses averaged .87 percent of sales in 1990, down from 1.01 percent in 1989, a 13.9 percent decrease.

Thirty-two percent of the companies charged out their expenses to users such as stores or distribution centers. Fifty-three percent of companies with revenues of $1 billion or more charged out their expenses. For those companies charging out their expenses, 58 percent used specific identification. Seventy-one percent of supermarket respondents used pro-rata allocation.

Payroll, taxes, and benefits claimed the lion's share of respondents' expenses, at 36 percent on average. Hardware/software depreciation accounted for 15 percent of expenses, and leased communications costs accounted for 14 percent.

Sixty-seven percent of the respondents said they prepare IS budgets annually, although department stores and specialty apparel stores were more likely to prepare them semi-annually.

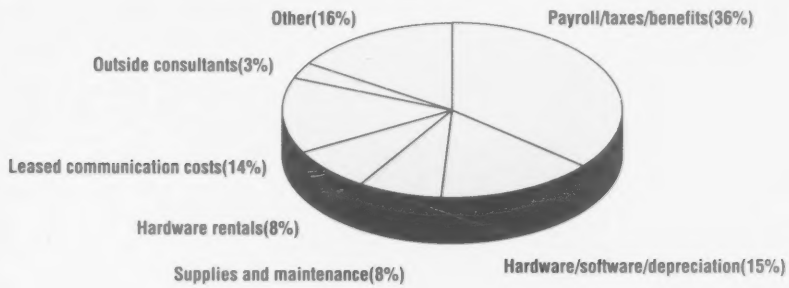
Average capital expenditures were $3.7 million, up from $3.2 million in 1989, nearly a 16 percent increase. On a same-respondent basis, average capital expenditures increased by 3.4 percent. However, three segments reported a decrease: convenience stores, department stores, and mass merchants reported decreases of 59.9 percent, 18.1 percent, and 7.7 percent, respectively.

Forty-three percent of capital expenditures for IS/in-store purchases went for POS devices and controllers, down from 49 percent in 1989. Respondents increased their expenditures for communications equipment and software from four percent to eight percent.

Executive committee approval was required for large capital expenditures at 54 percent of responding companies. Thirty-three percent required board of director approval.

In 1990, 52 percent of IS systems development payroll costs went for on-going sytems maintenance. Forty-eight percent went for new systems development, up from 43 percent in 1989.

BREAKDOWN OF 1990 IS EXPENSES (BASED ON 124 RESPONSES)



ANALYSIS OF IS EXPENSES AS A % OF SALES

	All Participants		Participants by 1990 Sales Volume in $ Millions							
			Under $100		$101-$399		$400-$999		$1,000 or more	
	1990	1989	1990	1989	1990	1989	1990	1989	1990	1989
ALL PARTICIPANTS:										
Total company average IS expenses as a % of sales	0.80% *(124)*	0.75% *(119)*	0.98% *(34)*	0.83% *(32)*	0.81% *(44)*	0.80% *(43)*	0.75% *(18)*	0.65% *(19)*	0.57% *(28)*	0.62% *(25)*
Number of responses in the following ranges:										
None - Under .25%	14	14	2	2	6	7	2	2	4	3
.25%-.49%	26	25	5	8	7	5	4	4	10	8
.50%-.74%	23	27	6	4	7	13	4	5	6	5
.75%-.99%	32	25	11	9	10	5	6	6	5	5
1.0%-1.24%	12	12	3	2	7	6	-	1	2	3
1.25%-1.99%	12	14	4	6	5	6	2	1	1	1
2.0% and over	5	2	3	1	2	1	-	-	-	-
Average IS expenses as a % of sales (not allocated out of IS department)	0.65% *(124)*	0.61% *(119)*	0.78% *(34)*	0.66% *(32)*	0.70% *(44)*	0.71% *(43)*	0.61% *(18)*	0.52% *(19)*	0.40% *(28)*	0.42% *(25)*
Number of responses in the following ranges:										
None - Under .25%	28	29	3	4	11	11	4	4	10	10
.25%-.49%	25	25	8	10	5	5	4	4	8	6
.50%-.74%	22	24	5	3	8	12	4	5	5	4
.75%-.99%	29	26	10	10	10	6	5	6	4	4
1.0%-1.24%	8	5	3	2	5	3	-	-	-	-
1.25%-1.99%	10	9	5	3	3	5	1	-	1	1
2.0% and over	2	1	-	-	2	1	-	-	-	-
Average IS expenses as a % of sales (allocated to other departments)	0.15% *(124)*	0.14% *(119)*	0.20% *(34)*	0.17% *(32)*	0.11% *(44)*	0.09% *(43)*	0.14% *(18)*	0.13% *(19)*	0.17% *(28)*	0.20% *(25)*
Number of responses in the following ranges:										
None - Under .25%	103	99	28	27	37	37	16	16	22	19
.25%-.49%	6	5	2	1	2	1	-	1	2	2
.50%-.74%	5	5	-	1	3	3	-	1	2	-
.75%-.99%	5	4	-	1	2	1	1	-	2	2
1.0%-1.24%	1	3	1	-	-	1	-	-	-	2
1.25%-1.99%	3	2	2	1	-	-	1	1	-	-
2.0% and over	1	1	1	1	-	-	-	-	-	-

( ) = Number of responses to this question.

ANALYSIS OF IS EXPENSES AS A % OF SALES-CONTINUED

	All Participants		Participants by 1990 Sales Volume in $ Millions							
			Under $100		$101-$399		$400-$999		$1,000 or more	
	1990	1989	1990	1989	1990	1989	1990	1989	1990	1989
CONVENIENCE STORES:										
Total company average IS expenses as a % of sales	0.52% *(9)*	0.42% *(7)*	0.94% *(3)*	0.61% *(2)*	0.26% *(4)*	0.25% *(4)*	0.83% *(1)*	0.76% *(1)*	0.03% *(1)*	- -
Number of responses in the following ranges:										
None - Under .25%	5	4	1	1	3	3	-	-	1	-
.25%-.49%	-	-	-	-	-	-	-	-	-	-
.50%-.74%	1	1	-	-	1	1	-	-	-	-
.75%-.99%	1	1	-	-	-	-	1	1	-	-
1.0%-1.24%	1	1	1	1	-	-	-	-	-	-
1.25%-1.99%	1	-	1	-	-	-	-	-	-	-
2.0% and over	-	-	-	-	-	-	-	-	-	-
Average IS expenses as a % of sales (not allocated out of IS department)	0.52% *(9)*	0.42% *(7)*	0.94% *(3)*	0.61% *(2)*	0.26% *(4)*	0.25% *(4)*	0.83% *(1)*	0.76% *(1)*	0.00% *(1)*	- -
Number of responses in the following ranges:										
None - Under .25%	5	4	1	1	3	3	-	-	1	-
.25%-.49%	-	-	-	-	-	-	-	-	-	-
.50%-.74%	1	1	-	-	1	1	-	-	-	-
.75%-.99%	1	1	-	-	-	-	1	1	-	-
1.0%-1.24%	1	1	1	1	-	-	-	-	-	-
1.25%-1.99%	1	-	1	-	-	-	-	-	-	-
2.0% and over	-	-	-	-	-	-	-	-	-	-
Average IS expenses as a % of sales (allocated to other departments)	0.00% *(9)*	0.00% *(7)*	0.00% *(3)*	0.00% *(2)*	0.00% *(4)*	0.00% *(4)*	0.00% *(1)*	0.00% *(1)*	0.03% *(1)*	- -
Number of responses in the following ranges:										
None - Under .25%	9	7	3	2	4	4	1	1	1	-
.25%-.49%	-	-	-	-	-	-	-	-	-	-
.50%-.74%	-	-	-	-	-	-	-	-	-	-
.75%-.99%	-	-	-	-	-	-	-	-	-	-
1.0%-1.24%	-	-	-	-	-	-	-	-	-	-
1.25%-1.99%	-	-	-	-	-	-	-	-	-	-
2.0% and over	-	-	-	-	-	-	-	-	-	-
DEPARTMENT STORES:										
Total company average IS expenses as a % of sales	0.87% *(12)*	1.01% *(12)*	0.73% *(6)*	0.85% *(6)*	1.05% *(4)*	1.33% *(4)*	0.71% *(1)*	0.65% *(1)*	1.11% *(1)*	1.15% *(1)*
Number of responses in the following ranges:										
None - Under .25%	1	-	1	-	-	-	-	-	-	-
.25%-.49%	-	2	-	1	-	1	-	-	-	-
.50%-.74%	3	2	1	1	1	-	1	1	-	-
.75%-.99%	4	4	4	2	-	2	-	-	-	-
1.0%-1.24%	3	1	-	-	2	-	-	-	1	1
1.25%-1.99%	1	2	-	2	1	-	-	-	-	-
2.0% and over	-	1	-	-	-	1	-	-	-	-
Average IS expenses as a % of sales (not allocated out of IS department)	0.74% *(12)*	0.86% *(12)*	0.63% *(6)*	0.73% *(6)*	1.05% *(4)*	1.33% *(4)*	0.71% *(1)*	0.65% *(1)*	0.14% *(1)*	0.12% *(1)*
Number of responses in the following ranges:										
None - Under .25%	2	1	1	-	-	-	-	-	1	1
.25%-.49%	1	3	1	2	-	1	-	-	-	-
.50%-.74%	3	1	1	-	1	-	1	1	-	-
.75%-.99%	3	5	3	3	-	2	-	-	-	-
1.0%-1.24%	2	-	-	-	2	-	-	-	-	-
1.25%-1.99%	1	1	-	1	1	-	-	-	-	-
2.0% and over	-	1	-	-	-	1	-	-	-	-
Average IS expenses as a % of sales (allocated to other departments)	0.13% *(12)*	0.15% *(12)*	0.10% *(6)*	0.12% *(6)*	0.00% *(4)*	0.00% *(4)*	0.00% *(1)*	0.00% *(1)*	0.97% *(1)*	1.03% *(1)*
Number of responses in the following ranges:										
None - Under .25%	10	10	5	5	4	4	1	1	-	-
.25%-.49%	1	-	1	-	-	-	-	-	-	-
.50%-.74%	-	1	-	1	-	-	-	-	-	-
.75%-.99%	1	-	-	-	-	-	-	-	1	-
1.0%-1.24%	-	1	-	-	-	-	-	-	-	1
1.25%-1.99%	-	-	-	-	-	-	-	-	-	-
2.0% and over	-	-	-	-	-	-	-	-	-	-

( ) = Number of responses to this question.

ANALYSIS OF IS EXPENSES AS A % OF SALES-CONTINUED

	All Participants		Participants by 1990 Sales Volume in $ Millions							
			Under $100		$101-$399		$400-$999		$1,000 or more	
	1990	1989	1990	1989	1990	1989	1990	1989	1990	1989
MASS MERCHANTS:										
Total company average IS expenses as a % of sales	0.64%	0.63%	0.29%	0.16%	0.75%	0.67%	0.53%	0.50%	0.66%	0.81%
	(14)	*(12)*	*(1)*	*(1)*	*(5)*	*(4)*	*(3)*	*(3)*	*(5)*	*(4)*
Number of responses in the following ranges:										
None - Under .25%	-	2	-	1	-	1	-	-	-	-
.25%-.49%	4	2	1	-	1	-	1	2	1	-
.50%-.74%	5	4	-	-	1	2	2	1	2	1
.75%-.99%	3	3	-	-	1	-	-	-	2	3
1.0%-1.24%	2	1	-	-	2	1	-	-	-	-
1.25%-1.99%	-	-	-	-	-	-	-	-	-	-
2.0% and over	-	-	-	-	-	-	-	-	-	-
Average IS expenses as a % of sales (not allocated out of IS department)	0.52%	0.52%	0.29%	0.16%	0.56%	0.56%	0.53%	0.50%	0.52%	0.58%
	(14)	*(12)*	*(1)*	*(1)*	*(5)*	*(4)*	*(3)*	*(3)*	*(5)*	*(4)*
Number of responses in the following ranges:										
None - Under .25%	2	4	-	1	1	2	-	-	1	1
.25%-.49%	4	2	1	-	1	-	1	2	1	-
.50%-.74%	6	3	-	-	2	1	2	1	2	1
.75%-.99%	1	2	-	-	-	-	-	-	1	2
1.0%-1.24%	1	1	-	-	1	1	-	-	-	-
1.25%-1.99%	-	-	-	-	-	-	-	-	-	-
2.0% and over	-	-	-	-	-	-	-	-	-	-
Average IS expenses as a % of sales (allocated to other departments)	0.12%	0.11%	0.00%	0.00%	0.19%	0.11%	0.00%	0.00%	0.14%	0.23%
	(14)	*(12)*	*(1)*	*(1)*	*(5)*	*(4)*	*(3)*	*(3)*	*(5)*	*(4)*
Number of responses in the following ranges:										
None - Under .25%	12	10	1	1	4	3	3	3	4	3
.25%-.49%	-	1	-	-	-	1	-	-	-	-
.50%-.74%	1	-	-	-	-	-	-	-	1	-
.75%-.99%	1	1	-	-	1	-	-	-	-	1
1.0%-1.24%	-	-	-	-	-	-	-	-	-	-
1.25%-1.99%	-	-	-	-	-	-	-	-	-	-
2.0% and over	-	-	-	-	-	-	-	-	-	-
SPECIALTY APPAREL:										
Total company average IS expenses as a % of sales	1.04%	0.98%	0.81%	0.80%	1.20%	1.12%	1.61%	1.35%	0.99%	0.96%
	(19)	*(19)*	*(8)*	*(8)*	*(8)*	*(8)*	*(1)*	*(1)*	*(2)*	*(2)*
Number of responses in the following ranges:										
None - Under .25%	-	-	-	-	-	-	-	-	-	-
.25%-.49%	3	4	1	2	2	2	-	-	-	-
.50%-.74%	3	2	2	1	1	1	-	-	-	-
.75%-.99%	6	4	4	3	1	-	-	-	1	1
1.0%-1.24%	1	2	-	1	-	-	-	-	1	1
1.25%-1.99%	4	7	1	1	2	5	1	1	-	-
2.0% and over	2	-	-	-	2	-	-	-	-	-
Average IS expenses as a % of sales (not allocated out of IS department)	0.91%	0.85%	0.77%	0.76%	1.14%	1.04%	0.14%	0.03%	0.89%	0.87%
	(19)	*(19)*	*(8)*	*(8)*	*(8)*	*(8)*	*(1)*	*(1)*	*(2)*	*(2)*
Number of responses in the following ranges:										
None - Under .25%	1	1	-	-	-	-	1	1	-	-
.25%-.49%	4	5	2	3	2	2	-	-	-	-
.50%-.74%	2	2	1	1	1	1	-	-	-	-
.75%-.99%	8	5	4	2	2	1	-	-	2	2
1.0%-1.24%	-	1	-	1	-	-	-	-	-	-
1.25%-1.99%	2	5	1	1	1	4	-	-	-	-
2.0% and over	2	-	-	-	2	-	-	-	-	-
Average IS expenses as a % of sales (allocated to other departments)	0.13%	0.13%	0.04%	0.04%	0.06%	0.08%	1.47%	1.32%	0.10%	0.09%
	(19)	*(19)*	*(8)*	*(8)*	*(8)*	*(8)*	*(1)*	*(1)*	*(2)*	*(2)*
Number of responses in the following ranges:										
None - Under .25%	16	16	7	7	7	7	-	-	2	2
.25%-.49%	2	1	1	1	1	-	-	-	-	-
.50%-.74%	-	1	-	-	-	1	-	-	-	-
.75%-.99%	-	-	-	-	-	-	-	-	-	-
1.0%-1.24%	-	-	-	-	-	-	-	-	-	-
1.25%-1.99%	1	1	-	-	-	-	1	1	-	-
2.0% and over	-	-	-	-	-	-	-	-	-	-

( ) = Number of responses to this question.

ANALYSIS OF IS EXPENSES AS A % OF SALES-CONTINUED

	All Participants		Participants by 1990 Sales Volume in $ Millions							
			Under $100		$101-$399		$400-$999		$1,000 or more	
	1990	1989	1990	1989	1990	1989	1990	1989	1990	1989
SPECIALTY HARDLINES:										
Total company average IS expenses as a % of sales	0.79% *(21)*	0.76% *(20)*	1.32% *(4)*	1.21% *(3)*	0.63% *(9)*	0.75% *(9)*	0.79% *(4)*	0.65% *(4)*	0.65% *(4)*	0.58% *(4)*
Number of responses in the following ranges:										
None - Under .25%	1	1	-	-	1	1	-	-	-	-
.25%-.49%	5	5	-	1	3	1	1	1	1	2
.50%-.74%	3	6	1	-	-	4	-	1	2	1
.75%-.99%	9	3	-	-	5	-	3	2	1	1
1.0%-1.24%	2	2	2	-	-	2	-	-	-	-
1.25%-1.99%	-	3	-	2	-	1	-	-	-	-
2.0% and over	1	-	1	-	-	-	-	-	-	-
Average IS expenses as a % of sales (not allocated out of IS department)	0.58% *(21)*	0.51% *(20)*	1.07% *(4)*	0.88% *(3)*	0.45% *(9)*	0.48% *(9)*	0.56% *(4)*	0.47% *(4)*	0.45% *(4)*	0.38% *(4)*
Number of responses in the following ranges										
None - Under .25%	6	6	-	-	4	4	1	1	1	1
.25%-.49%	3	5	-	1	1	1	1	1	1	2
.50%-.74%	2	4	1	-	-	3	-	-	1	1
.75%-.99%	7	3	-	1	4	-	2	2	1	-
1.0%-1.24%	2	-	2	-	-	-	-	-	-	-
1.25%-1.99%	1	2	1	1	-	1	-	-	-	-
2.0% and over	-	-	-	-	-	-	-	-	-	-
Average IS expenses as a % of sales (allocated to other departments)	0.21% *(21)*	0.25% *(20)*	0.25% *(4)*	0.33% *(3)*	0.18% *(9)*	0.27% *(9)*	0.23% *(4)*	0.18% *(4)*	0.20% *(4)*	0.20% *(4)*
Number of responses in the following ranges										
None - Under .25%	16	14	3	2	7	6	3	3	3	3
.25%-.49%	1	-	-	-	1	-	-	-	-	-
.50%-.74%	1	2	-	-	-	1	-	1	1	-
.75%-.99%	2	3	-	1	1	1	1	-	-	1
1.0%-1.24%	1	1	1	-	-	1	-	-	-	-
1.25%-1.99%	-	-	-	-	-	-	-	-	-	-
2.0% and over	-	-	-	-	-	-	-	-	-	-
SPECIALTY OTHER:										
Total company average IS expenses as a % of sales	1.12% *(23)*	0.87% *(24)*	1.31% *(10)*	0.94% *(10)*	0.86% *(8)*	0.70% *(8)*	1.11% *(3)*	0.83% *(4)*	1.25% *(2)*	1.30% *(2)*
Number of responses in the following ranges:										
None - Under .25%	1	-	-	-	1	-	-	-	-	-
.25%-.49%	2	4	2	3	-	1	-	-	-	-
.50%-.74%	4	6	1	1	2	4	1	1	-	-
.75%-.99%	7	8	3	4	2	2	1	2	1	-
1.0%-1.24%	2	3	-	-	2	1	-	1	-	1
1.25%-1.99%	5	2	2	1	1	-	1	-	1	1
2.0% and over	2	1	2	1	-	-	-	-	-	-
Average IS expenses as a % of sales (not allocated out of IS department)	0.82% *(23)*	0.65% *(24)*	0.82% *(10)*	0.60% *(10)*	0.73% *(8)*	0.64% *(8)*	1.11% *(3)*	0.74% *(4)*	0.78% *(2)*	0.78% *(2)*
Number of responses in the following ranges:										
None - Under .25%	3	2	1	1	1	-	-	-	1	1
.25%-.49%	3	5	3	4	-	1	-	-	-	-
.50%-.74%	5	7	1	1	3	5	1	1	-	-
.75%-.99%	7	9	3	4	3	2	1	3	-	-
1.0%-1.24%	1	-	-	-	1	-	-	-	-	-
1.25%-1.99%	4	1	2	-	-	-	1	-	1	1
2.0% and over	-	-	-	-	-	-	-	-	-	-
Average IS expenses as a % of sales (allocated to other departments)	0.30% *(23)*	0.22% *(24)*	0.49% *(10)*	0.34% *(10)*	0.13% *(8)*	0.06% *(8)*	0.00% *(3)*	0.09% *(4)*	0.47% *(2)*	0.52% *(2)*
Number of responses in the following ranges:										
None - Under .25%	17	19	7	8	6	7	3	3	1	1
.25%-.49%	-	1	-	-	-	-	-	1	-	-
.50%-.74%	2	1	-	-	2	1	-	-	-	-
.75%-.99%	1	-	-	-	-	-	-	-	1	-
1.0%-1.24%	-	1	-	-	-	-	-	-	-	1
1.25%-1.99%	2	1	2	1	-	-	-	-	-	-
2.0% and over	1	1	1	1	-	-	-	-	-	-

( ) = Number of responses to this question.

ANALYSIS OF IS EXPENSES AS A % OF SALES-CONTINUED

	All Participants		Participants by 1990 Sales Volume in $ Millions							
			Under $100		$101-$399		$400-$999		$1,000 or more	
	1990	1989	1990	1989	1990	1989	1990	1989	1990	1989
SUPERMARKET/GROCERY:										
Total company average IS expenses as a % of sales	0.37%	0.34%	0.30%	0.28%	0.50%	0.18%	0.39%	0.41%	0.35%	0.35%
	(15)	*(13)*	*(1)*	*(1)*	*(2)*	*(1)*	*(3)*	*(3)*	*(9)*	*(8)*
Number of responses in the following ranges:										
None - Under .25%	3	4	-	-	-	1	1	1	2	2
.25%-.49%	11	7	1	1	1	-	2	1	7	5
.50%-.74%	1	2	-	-	1	-	-	1	-	1
.75%-.99%	-	-	-	-	-	-	-	-	-	-
1.0%-1.24%	-	-	-	-	-	-	-	-	-	-
1.25%-1.99%	-	-	-	-	-	-	-	-	-	-
2.0% and over	-	-	-	-	-	-	-	-	-	-
Average IS expenses as a % of sales (not allocated out of IS department)	0.26%	0.26%	0.25%	0.24%	0.13%	0.18%	0.38%	0.40%	0.25%	0.24%
	(15)	*(13)*	*(1)*	*(1)*	*(2)*	*(1)*	*(3)*	*(3)*	*(9)*	*(8)*
Number of responses in the following ranges:										
None - Under .25%	6	8	-	1	1	1	1	1	4	5
.25%-.49%	9	3	1	-	1	-	2	1	5	2
.50%-.74%	-	2	-	-	-	-	-	1	-	1
.75%-.99%	-	-	-	-	-	-	-	-	-	-
1.0%-1.24%	-	-	-	-	-	-	-	-	-	-
1.25%-1.99%	-	-	-	-	-	-	-	-	-	-
2.0% and over	-	-	-	-	-	-	-	-	-	-
Average IS expenses as a % of sales (allocated to other departments)	0.11%	0.08%	0.05%	0.04%	0.37%	0.00%	0.01%	0.01%	0.10%	0.11%
	(15)	*(13)*	*(1)*	*(1)*	*(2)*	*(1)*	*(3)*	*(3)*	*(9)*	*(8)*
Number of responses in the following ranges:										
None - Under .25%	12	11	1	1	1	1	3	3	7	6
.25%-.49%	2	2	-	-	-	-	-	-	2	2
.50%-.74%	1	-	-	-	1	-	-	-	-	-
.75%-.99%	-	-	-	-	-	-	-	-	-	-
1.0%-1.24%	-	-	-	-	-	-	-	-	-	-
1.25%-1.99%	-	-	-	-	-	-	-	-	-	-
2.0% and over	-	-	-	-	-	-	-	-	-	-
DRUG/MAIL ORDER/DIRECT MAIL/OTHER:										
Total company average IS expenses as a % of sales	0.62%	0.60%	0.71%	0.57%	0.89%	0.81%	0.54%	0.45%	0.37%	0.41%
	(11)	*(12)*	*(1)*	*(1)*	*(4)*	*(5)*	*(2)*	*(2)*	*(4)*	*(4)*
Number of responses in the following ranges:										
None - Under .25%	3	3	-	-	1	1	1	1	1	1
.25%-.49%	1	1	-	-	-	-	-	-	1	1
.50%-.74%	3	4	1	1	-	1	-	-	2	2
.75%-.99%	2	2	-	-	1	1	1	1	-	-
1.0%-1.24%	1	2	-	-	1	2	-	-	-	-
1.25%-1.99%	1	-	-	-	1	-	-	-	-	-
2.0% and over	-	-	-	-	-	-	-	-	-	-
Average IS expenses as a % of sales (not allocated out of IS department)	0.60%	0.57%	0.71%	0.57%	0.89%	0.81%	0.50%	0.41%	0.33%	0.34%
	(11)	*(12)*	*(1)*	*(1)*	*(4)*	*(5)*	*(2)*	*(2)*	*(4)*	*(4)*
Number of responses in the following ranges:										
None - Under .25%	3	3	-	-	1	1	1	1	1	1
.25%-.49%	1	2	-	-	-	-	-	-	1	2
.50%-.74%	3	4	1	1	-	1	-	1	2	1
.75%-.99%	2	1	-	-	1	1	1	-	-	-
1.0%-1.24%	1	2	-	-	1	2	-	-	-	-
1.25%-1.99%	1	-	-	-	1	-	-	-	-	-
2.0% and over	-	-	-	-	-	-	-	-	-	-
Average IS expenses as a % of sales (allocated to other departments)	0.02%	0.03%	0.00%	0.00%	0.00%	0.00%	0.04%	0.04%	0.04%	0.07%
	(11)	*(12)*	*(1)*	*(1)*	*(4)*	*(5)*	*(2)*	*(2)*	*(4)*	*(4)*
Number of responses in the following ranges										
None - Under .25%	11	12	1	1	4	5	2	2	4	4
.25%-.49%	-	-	-	-	-	-	-	-	-	-
.50%-.74%	-	-	-	-	-	-	-	-	-	-
.75%-.99%	-	-	-	-	-	-	-	-	-	-
1.0%-1.24%	-	-	-	-	-	-	-	-	-	-
1.25%-1.99%	-	-	-	-	-	-	-	-	-	-
2.0% and over	-	-	-	-	-	-	-	-	-	-

( ) = Number of responses to this question.

ANALYSIS OF IS OPERATING EXPENSES

	All Participants		Participants by 1990 Sales Volume in $ Millions							
			Under $100		$101-$399		$400-$999		$1,000 or more	
	1990	1989	1990	1989	1990	1989	1990	1989	1990	1989
ALL PARTICIPANTS:										
Total IS expenses (in $ millions)	968.1 *(124)*	949.0 *(119)*	13.9 *(34)*	10.9 *(32)*	69.8 *(44)*	62.2 *(43)*	90.8 *(18)*	78.5 *(19)*	793.7 *(28)*	797.2 *(25)*
Average IS expenses (in $ millions)	7.8	8.0	0.4	0.3	1.6	1.4	5.0	4.1	28.3	31.9
Number of responses in the following ranges:										
Expenses<$350,000	24	28	19	21	5	7	-	-	-	-
$350,000-$999,999	30	22	14	9	15	12	-	1	1	-
$1,000,000-$4,999,999	39	41	1	2	23	24	12	12	3	3
$5,000,000 or more	31	28	-	-	1	-	6	6	24	22
CONVENIENCE STORES:										
Total IS expenses (in $ millions)	6.8 *(9)*	5.1 *(7)*	0.7 *(3)*	0.1 *(2)*	1.3 *(4)*	1.2 *(4)*	4.4 *(1)*	3.8 *(1)*	0.5 *(1)*	- -
Average IS expenses (in $ millions)	0.8	0.7	0.2	0.1	0.3	0.3	4.4	3.8	0.5	-
Number of responses in the following ranges:										
Expenses<$350,000	5	5	2	2	3	3	-	-	-	-
$350,000-$999,999	3	1	1	-	1	1	-	-	1	-
$1,000,000-$4,999,999	1	1	-	-	-	-	1	1	-	-
$5,000,000 or more	-	-	-	-	-	-	-	-	-	-
DEPARTMENT STORES:										
Total IS expenses (in $ millions)	198.5 *(12)*	202.1 *(12)*	3.1 *(6)*	3.5 *(6)*	10.4 *(4)*	9.7 *(4)*	4.5 *(1)*	4.0 *(1)*	180.4 *(1)*	184.9 *(1)*
Average IS expenses (in $ millions)	16.5	16.8	0.5	0.6	2.6	2.4	4.5	4.0	180.4	184.9
Number of responses in the following ranges:										
Expenses<$350,000	3	2	3	2	-	-	-	-	-	-
$350,000-$999,999	4	4	3	3	1	1	-	-	-	-
$1,000,000-$4,999,999	4	5	-	1	3	3	1	1	-	-
$5,000,000 or more	1	1	-	-	-	-	-	-	1	1

( ) = Number of responses to this question.

ANALYSIS OF IS OPERATING EXPENSES-CONTINUED

	All Participants		Participants by 1990 Sales Volume in $ Millions							
			Under $100		$101-$399		$400-$999		$1,000 or more	
	1990	1989	1990	1989	1990	1989	1990	1989	1990	1989
MASS MERCHANTS:										
Total IS expenses (in $ millions)	340.1 *(14)*	363.6 *(12)*	0.3 *(1)*	0.2 *(1)*	7.2 *(5)*	4.4 *(4)*	9.1 *(3)*	8.2 *(3)*	323.6 *(5)*	350.8 *(4)*
Average IS expenses (in $ millions)	24.3	30.3	0.3	0.2	1.4	1.1	3.0	2.7	64.7	87.7
Number of responses in the following ranges:										
Expenses<$350,000	1	2	1	1	-	1	-	-	-	-
$350,000-$999,999	2	1	-	-	2	1	-	-	-	-
$1,000,000-$4,999,999	6	5	-	-	3	2	3	3	-	-
$5,000,000 or more	5	4	-	-	-	-	-	-	5	4
SPECIALTY APPAREL:										
Total IS expenses (in $ millions)	64.9 *(19)*	58.1 *(19)*	2.8 *(8)*	2.5 *(8)*	16.3 *(8)*	15.3 *(8)*	11.9 *(1)*	10.1 *(1)*	33.9 *(2)*	30.1 *(2)*
Average IS expenses (in $ millions)	3.4	3.1	0.3	0.3	2.0	1.9	11.9	10.1	16.9	15.1
Number of responses in the following ranges:										
Expenses<$350,000	5	7	5	6	-	1	-	-	-	-
$350,000-$999,999	6	4	3	2	3	2	-	-	-	-
$1,000,000-$4,999,999	4	5	-	-	4	5	-	-	-	-
$5,000,000 or more	4	3	-	-	1	-	1	1	2	2
SPECIALTY HARDLINES:										
Total IS expenses (in $ millions)	84.6 *(21)*	72.8 *(20)*	3.0 *(4)*	1.7 *(3)*	11.6 *(9)*	12.2 *(9)*	23.1 *(4)*	19.1 *(4)*	46.8 *(4)*	39.8 *(4)*
Average IS expenses (in $ millions)	4.0	3.6	0.8	0.6	1.3	1.4	5.8	4.8	11.7	9.9
Number of responses in the following ranges:										
Expenses<$350,000	-	1	-	1	-	-	-	-	-	-
$350,000-$999,999	7	4	3	1	4	3	-	-	-	-
$1,000,000-$4,999,999	7	9	1	1	5	6	1	2	-	-
$5,000,000 or more	7	6	-	-	-	-	3	2	4	4

( ) = Number of responses to this question.

ANALYSIS OF IS OPERATING EXPENSES-CONTINUED

	All Participants		Participants by 1990 Sales Volume in $ Millions							
			Under $100		$101-$399		$400-$999		$1,000 or more	
	1990	1989	1990	1989	1990	1989	1990	1989	1990	1989
SPECIALTY OTHER:										
Total IS expenses (in $ millions)	77.6 *(23)*	71.7 *(24)*	3.5 *(10)*	2.0 *(10)*	13.1 *(8)*	10.4 *(8)*	21.9 *(3)*	19.2 *(4)*	39.1 *(2)*	39.5 *(2)*
Average IS expenses (in $ millions)	3.4	3.0	0.4	0.3	1.6	1.3	7.3	4.8	19.5	19.8
Number of responses in the following ranges:										
Expenses<$350,000	7	8	6	7	1	1	-	-	-	-
$350,000-$999,999	6	6	4	3	2	3	-	-	-	-
$1,000,000-$4,999,999	7	6	-	-	5	4	2	2	-	-
$5,000,000 or more	3	4	-	-	-	-	1	2	2	2
SUPERMARKET/GROCERY:										
Total IS expenses (in $ millions)	126.6 *(15)*	111.4 *(13)*	0.2 *(1)*	0.2 *(1)*	1.7 *(2)*	0.4 *(1)*	8.4 *(3)*	7.9 *(3)*	116.2 *(9)*	102.8 *(8)*
Average IS expenses (in $ millions)	8.4	8.6	0.2	0.2	0.9	0.4	2.8	2.6	12.9	12.9
Number of responses in the following ranges:										
Expenses<$350,000	1	1	1	1	-	-	-	-	-	-
$350,000-$999,999	2	1	-	-	2	1	-	-	-	-
$1,000,000-$4,999,999	5	5	-	-	-	-	3	3	2	2
$5,000,000 or more	7	6	-	-	-	-	-	-	7	6
DRUG/MAIL ORDER/DIRECT MAIL/OTHER:										
Total IS expenses (in $ millions)	69.1 *(11)*	64.3 *(12)*	0.3 *(1)*	0.2 *(1)*	8.2 *(4)*	8.6 *(5)*	7.5 *(2)*	6.2 *(2)*	53.1 *(4)*	49.2 *(4)*
Average IS expenses (in $ millions)	6.3	5.4	0.3	0.2	2.1	1.7	3.7	3.1	13.3	12.3
Number of responses in the following ranges:										
Expenses<$350,000	2	2	1	1	1	1	-	-	-	-
$350,000-$999,999	-	1	-	-	-	-	-	1	-	-
$1,000,000-$4,999,999	5	5	-	-	3	4	1	-	1	1
$5,000,000 or more	4	4	-	-	-	-	1	1	3	3

( ) = Number of responses to this question.

ANALYSIS OF IS CAPITAL EXPENDITURES

	All Participants		Participants by 1990 Sales Volume in $ Millions							
			Under $100		$101-$399		$400-$999		$1,000 or more	
	1990	1989	1990	1989	1990	1989	1990	1989	1990	1989
ALL PARTICIPANTS:										
Total IS capital expenditures (in $ millions)	398.4	328.6	7.5	5.3	23.6	22.7	25.4	23.1	341.9	277.5
	(109)	*(104)*	*(30)*	*(28)*	*(40)*	*(40)*	*(14)*	*(15)*	*(25)*	*(21)*
Average IS capital expenditures (in $ millions)	3.7	3.2	0.3	0.2	0.6	0.6	1.8	1.5	13.7	13.2
Number of responses in the following ranges:										
Under $350,000	48	51	23	24	21	22	2	3	2	2
$350,000-$999,999	22	21	6	3	12	11	2	5	2	2
$1,000,000-$4,999,999	23	20	1	1	7	7	9	7	6	5
$5,000,000 or more	16	12	-	-	-	-	1	-	15	12
CONVENIENCE STORES:										
Total IS capital expenditures (in $ millions)	2.1	5.3	0.1	0.1	0.6	0.4	1.4	4.8	-	-
	(8)	*(8)*	*(4)*	*(4)*	*(3)*	*(3)*	*(1)*	*(1)*	-	-
Average IS capital expenditures (in $ millions)	0.3	0.6	0.0	0.0	0.2	0.1	1.4	4.8	-	-
Number of responses in the following ranges:										
Under $350,000	6	7	4	4	2	3	-	-	-	-
$350,000-$999,999	1	-	-	-	1	-	-	-	-	-
$1,000,000-$4,999,999	1	1	-	-	-	-	1	1	-	-
$5,000,000 or more	-	-	-	-	-	-	-	-	-	-
DEPARTMENT STORES:										
Total IS capital expenditures (in $ millions)	59.3	72.4	1.7	1.7	3.4	3.3	1.0	1.3	53.1	66.2
	(9)	*(9)*	*(4)*	*(4)*	*(3)*	*(3)*	*(1)*	*(1)*	*(1)*	*(1)*
Average IS capital expenditures (in $ millions)	6.6	8.0	0.4	0.4	1.1	1.1	1.0	1.3	53.1	66.2
Number of responses in the following ranges:										
Under $350,000	3	4	2	3	1	1	-	-	-	-
$350,000-$999,999	2	-	2	-	-	-	-	-	-	-
$1,000,000-$4,999,999	3	4	-	1	2	2	1	1	-	-
$5,000,000 or more	1	1	-	-	-	-	-	-	1	1

( ) = Number of responses to this question.

ANALYSIS OF IS CAPITAL EXPENDITURES-CONTINUED

	All Participants		Participants by 1990 Sales Volume in $ Millions							
			Under $100		$101-$399		$400-$999		$1,000 or more	
	1990	1989	1990	1989	1990	1989	1990	1989	1990	1989
MASS MERCHANTS:										
Total IS capital expenditures (in $ millions)	116.1 *(14)*	125.7 *(14)*	0.1 *(1)*	0.1 *(1)*	2.3 *(5)*	2.2 *(5)*	3.3 *(3)*	8.2 *(3)*	110.4 *(5)*	115.2 *(5)*
Average IS capital expenditures (in $ millions)	8.3	9.0	0.1	0.1	0.5	0.4	1.1	2.7	22.1	23.0
Number of responses in the following ranges:										
Under $350,000	5	4	1	1	4	3	-	-	-	-
$350,000-$999,999	1	2	-	-	-	1	1	1	-	-
$1,000,000-$4,999,999	4	3	-	-	1	1	2	2	1	-
$5,000,000 or more	4	5	-	-	-	-	-	-	4	5
SPECIALTY APPAREL:										
Total IS capital expenditures (in $ millions)	16.2 *(16)*	7.9 *(16)*	1.2 *(7)*	1.3 *(7)*	1.6 *(6)*	1.6 *(7)*	1.1 *(1)*	0.8 *(1)*	12.3 *(2)*	4.2 *(1)*
Average IS capital expenditures (in $ millions)	1.0	0.5	0.2	0.2	0.3	0.2	1.1	0.8	6.1	4.2
Number of responses in the following ranges:										
Under $350,000	10	10	6	6	4	4	-	-	-	-
$350,000-$999,999	3	5	1	1	2	3	-	1	-	-
$1,000,000-$4,999,999	2	1	-	-	-	-	1	-	1	1
$5,000,000 or more	1	-	-	-	-	-	-	-	1	-
SPECIALTY HARDLINES:										
Total IS capital expenditures (in $ millions)	36.6 *(19)*	26.4 *(18)*	2.9 *(4)*	0.7 *(3)*	3.8 *(9)*	5.3 *(9)*	0.4 *(2)*	0.7 *(2)*	29.4 *(4)*	19.8 *(4)*
Average IS capital expenditures (in $ millions)	1.9	1.5	0.7	0.2	0.4	0.6	0.2	0.3	7.4	5.0
Number of responses in the following ranges:										
Under $350,000	7	6	2	2	3	3	2	1	-	-
$350,000-$999,999	6	6	1	1	5	4	-	1	-	-
$1,000,000-$4,999,999	4	4	1	-	1	2	-	-	2	2
$5,000,000 or more	2	2	-	-	-	-	-	-	2	2

( ) = Number of responses to this question.

ANALYSIS OF IS CAPITAL EXPENDITURES-CONTINUED

	All Participants		Participants by 1990 Sales Volume in $ Millions							
			Under $100		$101-$399		$400-$999		$1,000 or more	
	1990	1989	1990	1989	1990	1989	1990	1989	1990	1989
SPECIALTY OTHER:										
Total IS capital expenditures (in $ millions)	27.0 *(21)*	16.5 *(21)*	1.4 *(9)*	1.3 *(8)*	5.8 *(7)*	6.1 *(7)*	15.0 *(3)*	6.2 *(4)*	4.8 *(2)*	3.0 *(2)*
Average IS capital expenditures (in $ millions)	1.3	0.8	0.2	0.2	0.8	0.9	5.0	1.5	2.4	1.5
Number of responses in the following ranges:										
Under $350,000	11	11	7	7	4	4	-	-	-	-
$350,000-$999,999	5	5	2	1	2	2	-	1	1	1
$1,000,000-$4,999,999	4	5	-	-	1	1	2	3	1	1
$5,000,000 or more	1	-	-	-	-	-	1	-	-	-
SUPERMARKET/GROCERY:										
Total IS capital expenditures (in $ millions)	88.6 *(11)*	52.7 *(8)*	- -	- -	0.5 *(2)*	0.6 *(1)*	2.1 *(2)*	0.5 *(2)*	86.0 *(7)*	51.6 *(5)*
Average IS capital expenditures (in $ millions)	8.1	6.6	-	-	0.2	0.6	1.1	0.2	12.3	10.3
Number of responses in the following ranges:										
Under $350,000	3	3	-	-	2	-	-	2	1	1
$350,000-$999,999	1	2	-	-	-	1	1	-	-	1
$1,000,000-$4,999,999	2	-	-	-	-	-	1	-	1	-
$5,000,000 or more	5	3	-	-	-	-	-	-	5	3
DRUG/MAIL ORDER/DIRECT MAIL/OTHER:										
Total IS capital expenditures (in $ millions)	52.6 *(11)*	21.6 *(10)*	0.1 *(1)*	0.2 *(1)*	5.5 *(5)*	3.2 *(5)*	1.2 *(1)*	0.8 *(1)*	45.8 *(4)*	17.4 *(3)*
Average IS capital expenditures (in $ millions)	4.8	2.2	0.1	0.2	1.1	0.6	1.2	0.8	11.5	5.8
Number of responses in the following ranges:										
Under $350,000	3	6	1	1	1	4	-	-	1	1
$350,000-$999,999	3	1	-	-	2	-	-	1	1	-
$1,000,000-$4,999,999	3	2	-	-	2	1	1	-	-	1
$5,000,000 or more	2	1	-	-	-	-	-	-	2	1

( ) = Number of responses to this question.

ANALYSIS OF IS CAPITAL EXPENDITURES FOR IS/IN-STORE PURCHASES

	All Participants		Participants by 1990 Sales Volume in $ Millions							
			Under $100		$101-$399		$400-$999		$1,000 or more	
	1990	1989	1990	1989	1990	1989	1990	1989	1990	1989
ALL PARTICIPANTS:										
Total IS/in-store purchases (in $ millions)	285.7 *(98)*	300.1 *(89)*	7.6 *(29)*	4.1 *(23)*	17.0 *(34)*	17.4 *(34)*	40.9 *(14)*	80.9 *(15)*	220.2 *(21)*	197.8 *(17)*
Average IS/in-store purchases (in $ millions)	2.9	3.4	0.3	0.2	0.5	0.5	2.9	5.4	10.5	11.6
Breakdown of IS/in-store purchases:										
Hardware										
Mainframe & peripherals	20%	29%	33%	31%	29%	10%	32%	77%	16%	11%
POS devices/controllers	43%	49%	29%	35%	38%	66%	29%	12%	46%	63%
Backroom/administrative equipment	21%	15%	7%	8%	9%	10%	3%	3%	26%	21%
Communications equipment	8%	4%	2%	9%	2%	3%	25%	5%	6%	3%
Software	8%	4%	29%	16%	22%	11%	12%	4%	6%	3%
CONVENIENCE STORES:										
Total IS/in-store purchases (in $ millions)	2.1 *(8)*	5.3 *(8)*	0.1 *(4)*	0.1 *(4)*	0.6 *(3)*	0.4 *(3)*	1.4 *(1)*	4.8 *(1)*	- -	- -
Average IS/in-store purchases (in $ millions)	0.3	0.7	0.0	0.0	0.2	0.1	1.4	4.8	-	-
Breakdown of IS/in-store purchases:										
Hardware										
Mainframe & peripherals	33%	20%	18%	33%	46%	10%	29%	21%	-	-
POS devices/controllers	16%	38%	78%	3%	23%	49%	7%	38%	-	-
Backroom/administrative equipment	12%	21%	1%	60%	10%	15%	14%	21%	-	-
Communications equipment	7%	10%	2%	2%	6%	8%	7%	10%	-	-
Software	33%	11%	1%	1%	15%	18%	43%	10%	-	-
DEPARTMENT STORES:										
Total IS/in-store purchases (in $ millions)	53.5 *(7)*	64.1 *(6)*	1.7 *(4)*	1.4 *(3)*	1.9 *(1)*	1.9 *(1)*	1.0 *(1)*	1.3 *(1)*	49.0 *(1)*	59.6 *(1)*
Average IS/in-store purchases (in $ millions)	7.6	10.7	0.4	0.5	1.9	1.9	1.0	1.3	49.0	59.6
Breakdown of IS/in-store purchases:										
Hardware										
Mainframe & peripherals	3%	12%	17%	42%	68%	2%	25%	12%	-	12%
POS devices/controllers	42%	80%	35%	4%	31%	92%	25%	80%	43%	80%
Backroom/administrative equipment	49%	7%	23%	1%	-	5%	50%	8%	52%	7%
Communications equipment	1%	0%	1%	22%	-	1%	-	-	1%	-
Software	5%	1%	24%	31%	1%	1%	-	-	4%	-

(1) = Number of responses to this question.

ANALYSIS OF IS CAPITAL EXPENDITURES FOR IS/IN-STORE PURCHASES-CONTINUED

	All Participants		Participants by 1990 Sales Volume in $ Millions							
			Under $100		$101-$399		$400-$999		$1,000 or more	
	1990	1989	1990	1989	1990	1989	1990	1989	1990	1989
MASS MERCHANTS:										
Total IS/in-store purchases (in $ millions)	81.5 *(15)*	84.3 *(14)*	0.8 *(2)*	0.4 *(2)*	2.3 *(5)*	2.1 *(5)*	2.3 *(3)*	8.2 *(3)*	76.1 *(5)*	73.5 *(4)*
Average IS/in-store purchases (in $ millions)	5.4	6.0	0.4	0.2	0.5	0.4	0.8	2.7	15.2	18.4
Breakdown of IS/in-store purchases:										
Hardware										
Mainframe & peripherals	27%	15%	59%	23%	37%	48%	36%	60%	26%	10%
POS devices/controllers	44%	47%	16%	28%	2%	3%	31%	24%	46%	51%
Backroom/administrative equipment	24%	34%	7%	13%	26%	29%	-	4%	25%	37%
Communications equipment	3%	1%	6%	12%	4%	6%	4%	-	3%	1%
Software	3%	2%	12%	23%	31%	15%	29%	12%	1%	1%
SPECIALTY APPAREL:										
Total IS/in-store purchases (in $ millions)	14.9 *(15)*	7.4 *(14)*	1.2 *(6)*	1.3 *(6)*	1.4 *(7)*	1.9 *(7)*	- -	- -	12.3 *(2)*	4.2 *(1)*
Average IS/in-store purchases (in $ millions)	1.0	0.5	0.2	0.2	0.2	0.3	-	-	6.2	4.2
Breakdown of IS/in-store purchases:										
Hardware										
Mainframe & peripherals	34%	27%	27%	30%	10%	2%	-	-	38%	37%
POS devices/controllers	13%	19%	60%	51%	46%	39%	-	-	4%	-
Backroom/administrative equipment	4%	11%	3%	12%	5%	3%	-	-	4%	14%
Communications equipment	13%	1%	1%	-	3%	3%	-	-	16%	-
Software	35%	43%	9%	7%	36%	53%	-	-	38%	49%
SPECIALTY HARDLINES:										
Total IS/in-store purchases (in $ millions)	23.4 *(16)*	14.1 *(14)*	2.0 *(4)*	0.0 *(2)*	1.8 *(6)*	2.1 *(6)*	9.6 *(3)*	3.8 *(3)*	10.0 *(3)*	8.2 *(3)*
Average IS/in-store purchases (in $ millions)	1.5	1.0	0.5	0.0	0.3	0.4	3.2	1.3	3.3	2.7
Hardware										
Breakdown of IS/in-store purchases:										
Mainframe & peripherals	19%	19%	35%	-	12%	11%	21%	18%	15%	21%
POS devices/controllers	43%	56%	11%	30%	21%	25%	28%	64%	68%	61%
Backroom/administrative equipment	7%	13%	-	13%	39%	30%	1%	1%	9%	14%
Communications equipment	22%	5%	1%	-	6%	16%	44%	1%	7%	5%
Software	9%	7%	53%	58%	22%	18%	6%	16%	0%	-

( ) = Number of responses to this question.

ANALYSIS OF IS CAPITAL EXPENDITURES FOR IS/IN-STORE PURCHASES-CONTINUED

	All Participants		Participants by 1990 Sales Volume in $ Millions							
			Under $100		$101-$399		$400-$999		$1,000 or more	
	1990	1989	1990	1989	1990	1989	1990	1989	1990	1989
SPECIALTY OTHER:										
Total IS/in-store purchases (in $ millions)	18.7 *(18)*	11.3 *(17)*	1.2 *(8)*	0.8 *(6)*	5.1 *(6)*	5.6 *(6)*	10.4 *(2)*	3.6 *(3)*	2.1 *(2)*	1.4 *(2)*
Average IS/in-store purchases (in $ millions)	1.0	0.7	0.2	0.1	0.9	0.9	5.2	1.2	1.1	0.7
Breakdown of IS/in-store purchases:										
Hardware										
Mainframe & peripherals	5%	6%	24%	19%	13%	4%	-	-	-	21%
POS devices/controllers	67%	68%	42%	72%	70%	90%	72%	52%	44%	17%
Backroom/administrative equipment	1%	13%	4%	6%	0%	6%	-	14%	9%	40%
Communications equipment	7%	5%	1%	2%	-	0%	5%	9%	37%	14%
Software	20%	9%	29%	1%	16%	0%	23%	25%	10%	7%
SUPERMARKET/GROCERY:										
Total IS/in-store purchases (in $ millions)	72.6 *(11)*	48.8 *(8)*	- -	- -	0.4 *(2)*	0.6 *(1)*	2.1 *(2)*	0.5 *(2)*	70.1 *(7)*	47.8 *(5)*
Average IS/in-store purchases (in $ millions)	6.6	6.1	-	-	0.2	0.6	1.1	0.3	10.0	9.6
Breakdown of IS/in-store purchases:										
Hardware										
Mainframe & peripherals	15%	7%	-	-	55%	-	43%	22%	14%	7%
POS devices/controllers	52%	64%	-	-	29%	100%	7%	11%	54%	64%
Backroom/administrative equipment	16%	14%	-	-	2%	-	12%	62%	16%	14%
Communications equipment	10%	9%	-	-	0%	-	14%	4%	10%	9%
Software	7%	6%	-	-	12%	-	24%	-	6%	6%
DRUG/MAIL ORDER/DIRECT MAIL/OTHER:										
Total IS/in-store purchases (in $ millions)	18.9 *(8)*	64.8 *(8)*	0.7 *(1)*	- -	3.4 *(4)*	2.8 *(5)*	14.2 *(2)*	58.8 *(2)*	0.7 *(1)*	3.2 *(1)*
Average IS/in-store purchases (in $ millions)	2.4	8.1	0.7	-	0.9	0.6	7.1	29.4	0.7	3.2
Breakdown of IS/in-store purchases:										
Hardware										
Mainframe & peripherals	54%	86%	61%	-	34%	5%	60%	94%	12%	9%
POS devices/controllers	9%	8%	-	-	28%	93%	2%	0%	54%	76%
Backroom/administrative equipment	0%	0%	-	-	-	-	0%	0%	-	-
Communications equipment	29%	6%	8%	-	2%	-	36%	5%	34%	15%
Software	8%	0%	31%	-	35%	3%	1%	0%	-	-

( ) = Number of responses to this question.

Telecommunications: Keeping Pace with Systems Growth

Telecommunications: Keeping Pace with Systems Growth

As retailers strive to improve efficiency and responsiveness, they are making greater commitments to information systems. But these new systems create new data—sometimes a great deal of additional data, which must be transmitted between the stores and the distribution centers, between headquarters and the stores, and so on. More data transmission places greater demands on a company's communications requirements—an issue that many technology-oriented retailers are now addressing.

Mervyn's is one such retailer. According to Cecilia Claudio, the company's director of computer services, Mervyn's has historically used land lines to transmit data throughout the organization. To transmit daily sales information, for example, the company uses a "trickle polling" procedure, in which each in-store computer continuously downloads sales data to headquarters via terrestrial lines.

This worked fine until last year, when the company added several new stores and, at the same time, increased data transmission through such programs as store-to-DC "rapid replenishment," headquarters-to-stores shipping manifests and pricing updates, and company-wide scanning at the point of sale. Then Mervyn's had a problem: too much data and not enough time to transmit it all.

According to Terry Houff, senior manager, Network Strategies for Ernst & Young, many companies are now reaching this juncture. Having added scanning at the point of sale, many retailers must either expand their polling time, or increase the data communications circuit bandwidth to accommodate more data. New applications like perpetual inventory systems and executive information systems also generate more data traffic, placing retailers in a similar position.

Expanding polling time may not be an option for a large organization like Mervyn's; there aren't enough hours in an evening to transmit the data they need to transmit. The realistic alternative is to analyze data communications options that will increase bandwidth. Fortunately, there are many options here, notably: dedicated lease lines, X.25 packet switching networks, T1 multiplexing networks, and satellite communications. Mervyn's chose to convert its terrestrial network to satellite.

VSAT a viable option

Satellite communications is becoming increasingly popular. Through the use of a Very Small Aperature Terminal (VSAT), you bypass most if not all your data communications links, including the most expensive links—the so-called "last mile" from the store to the wire centers of the phone company.

As Claudio says, VSAT networks are also flexible—you can bring a site into service faster than you can secure a communications line. This is helpful

to Mervyn's, because the company is adding new stores in remote areas, so communications can be established simply by installing a VSAT dish on the store's roof. Also, the cost is coming down, making VSAT more viable for more companies.

Mervyn's has chosen a VSAT system from GTE Spacenet. It began converting all its stores to this system in October, 1990, and plans to complete the conversion by October, 1991.

Videoconferencing in vogue

Mervyn's is also planning to use the VSAT system to transmit video from its California headquarters to its stores. Initially, the company will do one-way video broadcasts for store personnel—simultaneously demonstrating how to display a specially promoted item, for example, or how to set up a particular fixture. The company also plans to use video for training. And, once it has the capability in place to do two-way videoconferences, Mervyn's intends to use the technology for communicating with its suppliers—something it already does extensively via EDI.

J.C. Penney goes video

J.C. Penney is also planning to make a major commitment to videoconferencing. According to Dave Evans, VP, Information Systems, Penney now has 60-70 locations that must communicate with each other regularly. For example, there are 16 telemarketing centers, six distribution centers for the catalog division, 13 credit service centers, and a systems development center in Milwaukee. With all of these "communities," it means that "meetings at a distance are increasing," says Evans. He believes that videoconferencing will encourage more direct contact among Penney associates while keeping travel budgets in tow.

Through videoconferencing, Penney also hopes to enhance its relationships with suppliers. Penney is already working closely with many of its suppliers through EDI and Quick Response partnerships, but Evans says videoconferencing will strengthen this "interconnection." Also, buyers will be able to see a lot of merchandise more efficiently, and through this technology they can screen new suppliers. In addition, systems suppliers will be able to make presentations via videoconference.

Currently, Penney does one-way video communications approximately 200 days a year. But these conferences are strictly internal, from Dallas headquarters to a store. Two-way videoconferencing will change the nature and frequency of all these communications, says Evans, and it will be as simple and cost effective as a fax machine.

ISDN a key enabler

When J.C. Penney starts its videoconferencing program, one of the key "enablers" will be carrier-based Integrated Services Digital Network (ISDN) offerings. "With this capability, we think dial-up videoconferencing will explode," Evans says. "The hardware and communications standards now make it viable as never before."

ISDN is a service which takes advantage of the deployment of digital switch technology among the interchange carriers and Regional Bell Operating Companies. ISDN provides integrated voice, video, and data communications in 16 or 64 kbps segments depending on the type of interface used. Moreover, 64 kbps bandwidth segments can be merged to provide greater bandwidth as needed. With this kind of flexibility, ISDN is seen by some retailers, including J.C. Penney, as an attractive option for voice, video, and data communications.

Penney's new generation of POS registers

Of course videoconferencing is not the only technology in which Penney is investing this year. The company is now installing a second generation of POS registers which allow for two major improvements: bar code scanning with laser scanners and full price lookup. Full price lookup has been the key driver behind the use of another key networking technology—local area networks (LANs) in the stores.

Penney began installing LANs—specifically token ring networks—in its stores in 1989. By the fall of 1991, Dave Evans says they will be in 1,000 of the company's 1360 stores. The actual number of devices in the network will be 42,000.

Another major project now underway at J.C. Penney is the consolidation of data centers. In about two years' time, the company has gone from seven centers to four. While on the surface this may seem like an unpleasant development, in fact it is an encouraging sign for the industry. Even as Penney makes greater and greater commitments to information systems, it is able to service those systems with fewer data centers.

Telecommunications is advancing so rapidly, it can not only keep pace with the systems it must support, it can do it with fewer facilities. As retailers seek to achieve greater efficiencies, it's good to see that telecommunications is holding up its end of the bargain.

5. Merchandising Technologies

Twenty-four percent of respondents said they have a head of merchandising IS in addition to a head of IS. Thirty percent of these merchandising heads report to the head of IS.

Thirty-three percent of all respondents said they were currently scanning a merchandising function. For supermarket respondents, that figure was 79 percent, and for companies with revenues of $1 billion or more the figure was 68 percent. Of those companies currently scanning, 66 percent were doing it for price verification. Of those supermarkets who were scanning, 100 percent were doing it for price verification.

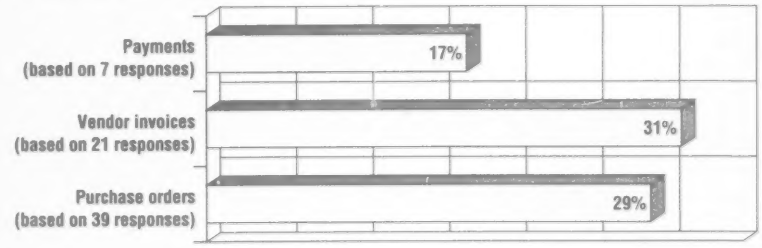
Forty-six percent of all respondents were currently exchanging data for some merchandise transactions. Seventy percent of supermarkets were using EDI, and 82 percent of companies with revenues of $1 billion or more were using EDI. For those companies exchanging data, 63 percent were exchanging it for vendor purchase orders, and 53 percent were exchanging sales data.

For those companies exchanging data electronically, EDI is being used with 18 percent of apparel vendors and 25 percent of non-apparel vendors.

Nineteen percent of respondents said they were currently using decision support/expert systems in merchandising decisions, and an additional 29 percent were planning to use these systems. Some 84 percent of these companies plan to have this software custom-developed. Fifty-nine percent of specialty "other" companies were currently using or planning to use decision support systems, while 58 percent of supermarkets were currently using or planning to use them. A survey-low 35 percent of the specialty apparel respondents were currently using or planning to use these systems.

For those companies currently using or planning to use decision support/expert systems, the following applications were noted: merchandise planning (79 percent), merchandise allocation (64 percent), pricing and promotion (57 percent), markdown planning (40 percent), open-to-buy (40 percent), and deal analysis (31 percent).

USE OF EDI BY TRANSACTION TYPE (IN TERMS OF $ VOLUME)



SCANNING OF MERCHANDISING FUNCTIONS

	Participants by 1990 Sales Volume in $ Millions				
	All Participants	Under $100	$100-$399	$400-$999	$1,000 or more
ALL PARTICIPANTS:					
Number of responses to the following:	150	50	47	22	31
Currently scanning	50	11	11	7	21
Merchandise receipts	21	4	4	3	10
Merchandise price changes	20	3	6	2	9
Price verification	33	7	8	5	13
Other	13	5	3	1	4
Planning to scan					
Merchandise receipts	63	24	19	7	13
Merchandise price changes	41	15	15	3	8
Price verification	56	23	17	8	8
Other	11	4	5	1	1
No plans to scan					
Merchandise receipts	59	20	21	11	7
Merchandise price changes	75	27	23	15	10
Price verification	54	18	21	9	6
Other	21	13	6	2	-
CONVENIENCE STORES:					
Number of responses to the following:	12	6	4	2	-
Currently scanning	2	-	1	1	-
Merchandise receipts	-	-	-	-	-
Merchandise price changes	-	-	-	-	-
Price verification	1	-	1	-	-
Other	1	-	-	1	-
Planning to scan					
Merchandise receipts	4	2	1	1	-
Merchandise price changes	4	1	2	1	-
Price verification	7	4	2	1	-
Other	1	1	-	-	-
No plans to scan					
Merchandise receipts	6	3	2	1	-
Merchandise price changes	4	2	1	1	-
Price verification	4	2	1	1	-
Other	3	2	1	-	-
DEPARTMENT STORES:					
Number of responses to the following:	16	8	3	2	3
Currently scanning	4	1	-	-	3
Merchandise receipts	1	-	-	-	1
Merchandise price changes	2	-	-	-	2
Price verification	1	-	-	-	1
Other	1	1	-	-	-
Planning to scan					
Merchandise receipts	9	4	1	2	2
Merchandise price changes	5	3	1	1	-
Price verification	8	3	2	2	1
Other	2	2	-	-	-
No plans to scan					
Merchandise receipts	6	4	2	-	-
Merchandise price changes	8	5	2	1	-
Price verification	6	5	1	-	-
Other	2	2	-	-	-

SCANNING OF MERCHANDISING FUNCTIONS-CONTINUED

	Participants by 1990 Sales Volume in $ Millions				
	All Participants	Under $100	$100-$399	$400-$999	$1,000 or more
MASS MERCHANTS:					
Number of responses to the following:	17	2	6	3	6
Currently scanning	8	-	2	1	5
Merchandise receipts	2	-	-	-	2
Merchandise price changes	4	-	2	-	2
Price verification	7	-	2	1	4
Other	2	-	1	-	1
Planning to scan					
Merchandise receipts	10	1	5	-	4
Merchandise price changes	7	1	3	-	3
Price verification	8	1	3	2	2
Other	1	-	1	-	-
No plans to scan					
Merchandise receipts	5	1	1	3	-
Merchandise price changes	5	1	1	2	1
Price verification	2	1	1	-	-
Other	2	1	1	-	-
SPECIALTY APPAREL:					
Number of responses to the following:	20	9	8	1	2
Currently scanning	4	2	-	-	2
Merchandise receipts	2	-	-	-	2
Merchandise price changes	1	-	-	-	1
Price verification	1	1	-	-	-
Other	1	1	-	-	-
Planning to scan					
Merchandise receipts	8	6	2	-	-
Merchandise price changes	7	3	2	1	1
Price verification	8	4	2	-	2
Other	2	-	2	-	-
No plans to scan					
Merchandise receipts	10	3	6	1	-
Merchandise price changes	12	6	6	-	-
Price verification	11	4	6	1	-
Other	4	2	2	-	-
SPECIALTY HARDLINES:					
Number of responses to the following:	25	7	10	4	4
Currently scanning	3	-	1	1	1
Merchandise receipts	1	-	-	1	-
Merchandise price changes	-	-	-	-	-
Price verification	1	-	-	-	1
Other	1	-	1	-	-
Planning to scan					
Merchandise receipts	12	4	5	1	2
Merchandise price changes	9	3	4	-	2
Price verification	10	5	4	1	-
Other	3	-	2	1	-
No plans to scan					
Merchandise receipts	10	2	4	2	2
Merchandise price changes	15	4	5	4	2
Price verification	12	2	5	3	2
Other	2	1	1	-	-

SCANNING OF MERCHANDISING FUNCTIONS-CONTINUED

	Participants by 1990 Sales Volume in $ Millions				
	All Participants	Under $100	$100-$399	$400-$999	$1,000 or more
SPECIALTY OTHER:					
Number of responses to the following:	25	10	9	4	2
Currently scanning	11	4	5	-	2
Merchandise receipts	5	2	2	-	1
Merchandise price changes	3	1	2	-	-
Price verification	6	3	3	-	-
Other	4	1	1	-	2
Planning to scan					
Merchandise receipts	12	4	4	3	1
Merchandise price changes	5	3	2	-	-
Price verification	7	4	2	1	-
Other	1	1	-	-	-
No plans to scan					
Merchandise receipts	8	4	3	1	-
Merchandise price changes	16	5	5	4	2
Price verification	11	2	4	3	2
Other	4	2	-	2	-
SUPERMARKET/GROCERY:					
Number of responses to the following:	19	3	3	4	9
Currently scanning	15	2	2	4	7
Merchandise receipts	9	2	2	2	3
Merchandise price changes	9	1	2	2	4
Price verification	15	2	2	4	7
Other	2	1	-	-	1
Planning to scan					
Merchandise receipts	3	-	-	-	3
Merchandise price changes	2	-	1	-	1
Price verification	3	1	1	-	1
Other	-	-	-	-	-
No plans to scan					
Merchandise receipts	7	1	1	2	3
Merchandise price changes	7	2	-	2	3
Price verification	1	-	-	-	1
Other	1	1	-	-	-
DRUG/MAIL ORDER/DIRECT MAIL/OTHER:					
Number of responses to the following:	16	5	4	2	5
Currently scanning	3	2	-	-	1
Merchandise receipts	1	-	-	-	1
Merchandise price changes	1	1	-	-	-
Price verification	1	1	-	-	-
Other	1	1	-	-	-
Planning to scan					
Merchandise receipts	5	3	1	-	1
Merchandise price changes	2	1	-	-	1
Price verification	5	1	1	1	2
Other	1	-	-	-	1
No plans to scan					
Merchandise receipts	7	2	2	1	2
Merchandise price changes	8	2	3	1	2
Price verification	7	2	3	1	1
Other	3	2	1	-	-

USE OF EDI FOR MERCHANDISING TRANSACTIONS

	Participants by 1990 Sales Volume in $ Millions				
	All Participants	Under $100	$100-$399	$400-$999	$1,000 or more
ALL PARTICIPANTS:					
Number of responses to the following:	151	49	47	22	33
Currently using	70	19	16	8	27
Vendor purchase orders	44	5	11	6	22
Purchase order acknowledgement	16	2	5	1	8
Planning schedules/forecasts	10	5	2	-	3
Planning/activity data	10	5	-	1	4
Sales	37	11	7	5	14
Other	12	5	1	-	6
Planning to use					
Vendor purchase orders	76	28	25	13	10
Purchase order acknowledgement	83	24	25	15	19
Planning schedules/forecasts	29	8	6	5	10
Planning/activity data	24	8	4	4	8
Sales	40	18	9	7	6
Other	6	-	1	2	3
No plans to use					
Vendor purchase orders	28	15	10	3	-
Purchase order acknowledgement	41	19	13	5	4
Planning schedules/forecasts	85	26	32	12	15
Planning/activity data	87	27	34	12	14
Sales	57	13	27	8	9
Other	18	7	6	4	1
CONVENIENCE STORES:					
Number of responses to the following:	11	5	3	2	1
Currently using	6	3	2	-	1
Vendor purchase orders	1	-	1	-	-
Purchase order acknowledgement	-	-	-	-	-
Planning schedules/forecasts	1	-	-	-	1
Planning/activity data	-	-	-	-	-
Sales	4	2	1	-	1
Other	1	1	-	-	-
Planning to use					
Vendor purchase orders	7	3	1	2	1
Purchase order acknowledgement	6	2	1	2	1
Planning schedules/forecasts	4	1	1	2	-
Planning/activity data	3	-	1	1	1
Sales	4	3	-	1	-
Other	-	-	-	-	-
No plans to use					
Vendor purchase orders	2	1	1	-	-
Purchase order acknowledgement	2	1	1	-	-
Planning schedules/forecasts	2	1	1	-	-
Planning/activity data	4	2	1	1	-
Sales	2	-	1	1	-
Other	1	-	-	1	-

USE OF EDI FOR MERCHANDISING TRANSACTIONS-CONTINUED

	Participants by 1990 Sales Volume in $ Millions				
	All Participants	Under $100	$100-$399	$400-$999	$1,000 or more
DEPARTMENT STORES:					
Number of responses to the following:	17	8	4	2	3
Currently using	7	2	1	1	3
Vendor purchase orders	4	-	-	1	3
Purchase order acknowledgement	1	-	-	-	1
Planning schedules/forecasts	1	1	-	-	-
Planning/activity data	1	1	-	-	-
Sales	7	2	1	1	3
Other	2	1	-	-	1
Planning to use					
Vendor purchase orders	10	6	3	1	-
Purchase order acknowledgement	9	4	2	2	1
Planning schedules/forecasts	3	1	-	-	2
Planning/activity data	3	1	-	-	2
Sales	7	5	1	1	-
Other	-	-	-	-	-
No plans to use					
Vendor purchase orders	3	2	1	-	-
Purchase order acknowledgement	6	4	1	-	1
Planning schedules/forecasts	9	6	2	-	1
Planning/activity data	9	6	2	-	1
Sales	3	1	2	-	-
Other	3	3	-	-	-
MASS MERCHANTS:					
Number of responses to the following:	17	2	6	3	6
Currently using	10	1	2	1	6
Vendor purchase orders	7	-	1	-	6
Purchase order acknowledgement	3	-	-	-	3
Planning schedules/forecasts	1	-	-	-	1
Planning/activity data	2	-	-	-	2
Sales	7	-	1	1	5
Other	3	1	-	-	2
Planning to use					
Vendor purchase orders	7	-	5	2	-
Purchase order acknowledgement	10	-	6	2	2
Planning schedules/forecasts	1	-	-	-	1
Planning/activity data	-	-	-	-	-
Sales	3	-	2	-	1
Other	2	-	1	-	1
No plans to use					
Vendor purchase orders	3	2	-	1	-
Purchase order acknowledgement	4	2	-	1	1
Planning schedules/forecasts	13	2	5	3	3
Planning/activity data	13	2	5	3	3
Sales	7	2	3	2	-
Other	2	-	1	1	-

USE OF EDI FOR MERCHANDISING TRANSACTIONS-CONTINUED

	All Participants	Participants by 1990 Sales Volume in $ Millions: Under $100	$100-$399	$400-$999	$1,000 or more
SPECIALTY APPAREL:					
Number of responses to the following:	20	9	8	1	2
Currently using	8	5	3	-	-
Vendor purchase orders	4	2	2	-	-
Purchase order acknowledgement	3	2	1	-	-
Planning schedules/forecasts	2	2	-	-	-
Planning/activity data	3	3	-	-	-
Sales	4	3	1	-	-
Other	1	-	1	-	-
Planning to use					
Vendor purchase orders	10	5	2	1	2
Purchase order acknowledgement	8	3	2	1	2
Planning schedules/forecasts	2	1	-	-	1
Planning/activity data	1	1	-	-	-
Sales	5	2	-	1	2
Other	-	-	-	-	-
No plans to use					
Vendor purchase orders	6	2	4	-	-
Purchase order acknowledgement	8	3	5	-	-
Planning schedules/forecasts	14	5	7	1	1
Planning/activity data	14	5	7	1	1
Sales	9	2	7	-	-
Other	2	-	2	-	-
SPECIALTY HARDLINES:					
Number of responses to the following:	25	7	10	4	4
Currently using	11	2	4	2	3
Vendor purchase orders	9	-	4	2	3
Purchase order acknowledgement	3	-	3	-	-
Planning schedules/forecasts	3	1	1	-	1
Planning/activity data	1	-	-	-	1
Sales	4	2	1	1	-
Other	1	-	-	-	1
Planning to use					
Vendor purchase orders	12	4	5	2	1
Purchase order acknowledgement	15	4	4	3	4
Planning schedules/forecasts	3	-	-	1	2
Planning/activity data	4	1	-	1	2
Sales	4	1	1	-	2
Other	-	-	-	-	-
No plans to use					
Vendor purchase orders	4	3	1	-	-
Purchase order acknowledgement	6	3	3	-	-
Planning schedules/forecasts	14	3	9	1	1
Planning/activity data	14	3	9	1	1
Sales	13	2	7	2	2
Other	3	1	2	-	-

USE OF EDI FOR MERCHANDISING TRANSACTIONS-CONTINUED

	Participants by 1990 Sales Volume in $ Millions				
	All Participants	Under $100	$100-$399	$400-$999	$1,000 or more
SPECIALTY OTHER:					
Number of responses to the following:	25	10	9	4	2
Currently using	7	2	3	1	1
Vendor purchase orders	4	-	3	1	-
Purchase order acknowledgement	1	-	1	-	-
Planning schedules/forecasts	2	1	1	-	-
Planning/activity data	1	1	-	-	-
Sales	3	1	1	-	1
Other	2	1	-	-	1
Planning to use					
Vendor purchase orders	15	7	4	2	2
Purchase order acknowledgement	15	5	6	2	2
Planning schedules/forecasts	7	4	1	1	1
Planning/activity data	7	4	1	1	1
Sales	8	3	2	3	-
Other	1	-	-	1	-
No plans to use					
Vendor purchase orders	6	3	2	1	-
Purchase order acknowledgement	8	4	2	2	-
Planning schedules/forecasts	14	3	7	3	1
Planning/activity data	15	3	8	3	1
Sales	11	3	6	1	1
Other	4	2	-	2	-
SUPERMARKET/GROCERY:					
Number of responses to the following:	20	3	3	4	10
Currently using	14	2	-	3	9
Vendor purchase orders	12	2	-	2	8
Purchase order acknowledgement	3	-	-	1	2
Planning schedules/forecasts	-	-	-	-	-
Planning/activity data	2	-	-	1	1
Sales	4	-	-	2	2
Other	-	-	-	-	-
Planning to use					
Vendor purchase orders	6	-	2	2	2
Purchase order acknowledgement	12	2	2	2	6
Planning schedules/forecasts	6	1	3	1	1
Planning/activity data	4	1	2	-	1
Sales	5	1	3	-	1
Other	1	-	-	-	1
No plans to use					
Vendor purchase orders	1	1	-	-	-
Purchase order acknowledgement	3	1	-	1	1
Planning schedules/forecasts	11	2	-	3	6
Planning/activity data	11	2	1	3	5
Sales	9	2	-	2	5
Other	2	1	-	-	1

USE OF EDI FOR MERCHANDISING TRANSACTIONS-CONTINUED

	Participants by 1990 Sales Volume in $ Millions				
	All Participants	Under $100	$100-$399	$400-$999	$1,000 or more
DRUG/MAIL ORDER/DIRECT MAIL/OTHER:					
Number of responses to the following:	16	5	4	2	5
Currently using	7	2	1	-	4
Vendor purchase orders	3	1	-	-	2
Purchase order acknowledgement	2	-	-	-	2
Planning schedules/forecasts	-	-	-	-	-
Planning/activity data	-	-	-	-	-
Sales	4	1	1	-	2
Other	2	1	-	-	1
Planning to use					
Vendor purchase orders	9	3	3	1	2
Purchase order acknowledgement	8	4	2	1	1
Planning schedules/forecasts	3	-	1	-	2
Planning/activity data	2	-	-	1	1
Sales	4	3	-	1	-
Other	2	-	-	1	1
No plans to use					
Vendor purchase orders	3	1	1	1	-
Purchase order acknowledgement	4	1	1	1	1
Planning schedules/forecasts	8	4	1	1	2
Planning/activity data	7	4	1	-	2
Sales	3	1	1	-	1
Other	1	-	1	-	-

6. Distribution Center/Warehousing Technologies

Some 67 percent of respondents are currently scanning or planning to scan goods in the warehouse/DC. This ranges from 30 percent for convenience store respondents to 84 percent for specialty apparel retailers. Of those companies currently scanning, 68 percent are scanning retailer outbound shipments and 26 percent are scanning retailer incoming shipments. In addition, 26 percent are scanning vendor marked cartons using shipping container marking bar codes.

For those retailers currently scanning in the DC, 50 percent are scanning for inventory taking, 47 percent are scanning for inventory picking, 42 percent are scanning for inventory put-away, and 22 percent are scanning for inventory receiving.

Twenty-seven percent of companies are currently using portable terminals for scanning in the DC, and an additional 65 percent are planning to use them. Of those companies currently or planning to use these terminals, 59 percent have chosen off-line portable devices and 41 percent have chosen radio frequency (RF) devices. Mass merchants, however, prefer RF devices (75 percent) to batch devices (25 percent).

Only five percent of respondents are currently using advance shipping notification (ASN), and an additional 33 percent plan to use ASN in the future. Some 60 percent of department stores plan to use ASN.

Only six percent of respondents are currently using decision support/expert systems in the DC, while an additional 20 percent are planning to use them. Some 13 percent of mass merchants are currently using these systems in the DC, and an additional 38 percent are planning to use them.

Of those companies currently using or planning to use decision support systems, 75 percent are using them or planning to use them for distribution planning and shipment scheduling, 72 percent will use them for traffic management and scheduling, 47 percent will use them for

Some 19 percent of respondents are currently using local area networks (LANs) in the warehouse, and 22 percent are planning to use them there. Fifty percent of mass merchants are currently using LANs in the DC, and 19 percent are planning to use them. Of those using or planning to use LANs in the DC, 67 percent are using or planning to use token ring LANs, and 24 percent are using or planning to use ethernet. Forty-three percent are using or planning to use Novell operating systems, and 36 percent are using or planning to use IBM.

Seventy-four percent of respondents are using or planning to use the PC as the end-user device, and 36 percent are using terminals.

SCANNING APPLICATIONS IN THE WAREHOUSE/DC

	Participants by 1990 Sales Volume in $ Millions				
	All Participants	Under $100	$100-$399	$400-$999	$1,000 or more
ALL PARTICIPANTS:					
Number of responses to the following:	86	24	26	13	23
Currently scanning	36	6	10	6	14
Inventory receiving	8	1	1	-	6
Inventory taking	18	5	6	1	6
Inventory putaway	15	3	1	3	8
Picking	17	3	4	3	7
Other	7	-	2	2	3
Planning to scan					
Inventory receiving	58	19	19	11	9
Inventory taking	52	17	18	9	8
Inventory putaway	45	15	16	9	5
Picking	48	15	17	9	7
Other	1	-	1	-	-
No plans to scan					
Inventory receiving	10	2	4	1	3
Inventory taking	8	1	2	2	3
Inventory putaway	12	2	5	1	4
Picking	11	3	3	-	5
Other	7	1	-	4	2
CONVENIENCE STORES:					
Number of responses to the following:	3	2	-	1	-
Currently scanning	-	-	-	-	-
Inventory receiving	-	-	-	-	-
Inventory taking	-	-	-	-	-
Inventory putaway	-	-	-	-	-
Picking	-	-	-	-	-
Other	-	-	-	-	-
Planning to scan					
Inventory receiving	3	2	-	1	-
Inventory taking	3	2	-	1	-
Inventory putaway	2	1	-	1	-
Picking	2	1	-	1	-
Other	-	-	-	-	-
No plans to scan					
Inventory receiving	-	-	-	-	-
Inventory taking	-	-	-	-	-
Inventory putaway	-	-	-	-	-
Picking	-	-	-	-	-
Other	1	-	-	1	-

SCANNING APPLICATIONS IN THE WAREHOUSE/DC-CONTINUED

	Participants by 1990 Sales Volume in $ Millions				
	All Participants	Under $100	$100-$399	$400-$999	$1,000 or more
DEPARTMENT STORES:					
Number of responses to the following:	8	3	1	1	3
Currently scanning	4	2	-	-	2
Inventory receiving	1	-	-	-	1
Inventory taking	4	2	-	-	2
Inventory putaway	3	2	-	-	1
Picking	1	1	-	-	-
Other	-	-	-	-	-
Planning to scan					
Inventory receiving	7	3	1	1	2
Inventory taking	3	1	1	1	-
Inventory putaway	2	1	-	1	-
Picking	2	1	-	1	-
Other	-	-	-	-	-
No plans to scan					
Inventory receiving	-	-	-	-	-
Inventory taking	-	-	-	-	-
Inventory putaway	1	-	-	-	1
Picking	2	1	-	-	1
Other	-	-	-	-	-
MASS MERCHANTS:					
Number of responses to the following:	11	1	2	2	6
Currently scanning	8	-	1	2	5
Inventory receiving	4	-	1	-	3
Inventory taking	4	-	-	-	4
Inventory putaway	8	-	1	2	5
Picking	6	-	1	2	3
Other	1	-	-	-	1
Planning to scan					
Inventory receiving	5	1	1	2	1
Inventory taking	7	1	2	2	2
Inventory putaway	3	1	1	-	1
Picking	4	1	1	-	2
Other	-	-	-	-	-
No plans to scan					
Inventory receiving	1	-	-	-	1
Inventory taking	-	-	-	-	-
Inventory putaway	-	-	-	-	-
Picking	1	-	-	-	1
Other	1	-	-	1	-
SPECIALTY APPAREL:					
Number of responses to the following:	14	5	6	1	2
Currently scanning	6	1	4	1	-
Inventory receiving	-	-	-	-	-
Inventory taking	1	-	1	-	-
Inventory putaway	1	1	-	-	-
Picking	4	1	3	-	-
Other	2	-	1	1	-
Planning to scan					
Inventory receiving	9	3	4	1	1
Inventory taking	9	3	4	1	1
Inventory putaway	7	3	2	1	1
Picking	6	3	1	1	1
Other	-	-	-	-	-
No plans to scan					
Inventory receiving	3	1	1	-	1
Inventory taking	3	1	1	-	1
Inventory putaway	4	-	3	-	1
Picking	2	-	1	-	1
Other	1	-	-	-	1

SCANNING APPLICATIONS IN THE WAREHOUSE/DC-CONTINUED

	Participants by 1990 Sales Volume in $ Millions				
	All Participants	Under $100	$100-$399	$400-$999	$1,000 or more
SPECIALTY HARDLINES:					
Number of responses to the following:	17	5	5	3	4
Currently scanning	4	-	1	2	1
Inventory receiving	-	-	-	-	-
Inventory taking	2	-	1	1	-
Inventory putaway	1	-	-	1	-
Picking	1	-	-	1	-
Other	1	-	-	-	1
Planning to scan					
Inventory receiving	12	4	4	1	3
Inventory taking	12	5	4	-	3
Inventory putaway	12	4	4	2	2
Picking	13	4	5	2	2
Other	1	-	1	-	-
No plans to scan					
Inventory receiving	1	-	-	1	-
Inventory taking	1	-	-	1	-
Inventory putaway	1	-	-	-	1
Picking	1	-	-	-	1
Other	1	-	-	1	-
SPECIALTY OTHER:					
Number of responses to the following:	16	3	8	3	2
Currently scanning	5	1	2	-	2
Inventory receiving	2	-	-	-	2
Inventory taking	3	1	2	-	-
Inventory putaway	-	-	-	-	-
Picking	3	1	-	-	2
Other	-	-	-	-	-
Planning to sca					
Inventory receiving	12	3	6	3	-
Inventory taking	10	2	5	2	1
Inventory putaway	12	2	7	3	-
Picking	12	2	7	3	-
Other	-	-	-	-	-
No plans to scan					
Inventory receiving	2	-	2	-	-
Inventory taking	3	-	1	1	1
Inventory putaway	2	-	1	-	1
Picking	1	-	1	-	-
Other	1	-	-	1	-
SUPERMARKET/GROCERY:					
Number of responses to the following:	8	2	1	1	4
Currently scanning	5	2	-	-	3
Inventory receiving	1	1	-	-	-
Inventory taking	2	2	-	-	-
Inventory putaway	1	-	-	-	1
Picking	1	-	-	-	1
Other	1	-	-	-	1
Planning to scan					
Inventory receiving	3	1	1	1	-
Inventory taking	2	-	1	1	-
Inventory putaway	2	1	1	-	-
Picking	4	1	1	1	1
Other	-	-	-	-	-
No plans to scan					
Inventory receiving	1	-	-	-	1
Inventory taking	1	-	-	-	1
Inventory putaway	2	1	-	1	-
Picking	2	1	-	-	1
Other	2	1	-	-	1

SCANNING APPLICATIONS IN THE WAREHOUSE/DC-CONTINUED

	Participants by 1990 Sales Volume in $ Millions				
	All Participants	Under $100	$100-$399	$400-$999	$1,000 or more
DRUG/MAIL ORDER/DIRECT MAIL/OTHER:					
Number of responses to the following:	9	3	3	1	2
Currently scanning	4	-	2	1	1
Inventory receiving	-	-	-	-	-
Inventory taking	2	-	2	-	-
Inventory putaway	1	-	-	-	1
Picking	1	-	-	-	1
Other	2	-	1	1	-
Planning to scan					
Inventory receiving	7	2	2	1	2
Inventory taking	6	3	1	1	1
Inventory putaway	5	2	1	1	1
Picking	5	2	2	-	1
Other	-	-	-	-	-
No plans to scan					
Inventory receiving	2	1	1	-	-
Inventory taking	-	-	-	-	-
Inventory putaway	2	1	1	-	-
Picking	2	1	1	-	-
Other	-	-	-	-	-

device, and 36 percent are using terminals.

7. POS/In-Store Technologies

Forty-one percent of respondents are currently scanning in the store, and an additional 42 percent are planning to scan. One hundred percent of the supermarket respondents are currently scanning, and 82 percent of the retailers with $1 billion or more in annual revenue are currently scanning.

Of those companies currently scanning in the store, 92 percent are scanning at the POS, 53 percent are scanning goods on the shelf/rack, and 25 percent are scanning goods into the backroom.

Of those companies currently scanning at the POS, the handheld laser is the most commonly used device, except in supermarkets, where 95 percent use the stationary/flatbed scanner. Overall, 50 percent of respondents use hand-held laser devices and 55 percent use stationary/flatbeds.

For those currently scanning goods on the shelf, 55 percent are using hand-held laser devices and 45 percent are using contact wands. For those currently doing backroom scanning, 57 percent are using hand-held lasers.

Just three percent of respondents are currently using wireless POS and 16 percent are planning to use them. The largest users are mass merchants: six percent of these companies are using wireless POS, and 35 percent plan to.

One percent of respondents are using Smart Cards to track customer information and 15 percent plan to use them. A survey-high 35 percent of supermarkets are planning to use Smart Cards.

Overall, 13 percent of respondents are currently using internal advance shipping notices in the receipt of merchandise by the store, and 25 percent plan to use them.

On average, companies said they used 76 percent of the data generated by their POS systems. While 10 percent of the companies reported using less than 25 percent of the data, 64 percent reported using more than 75 percent. Convenience stores use a survey-low average of 44 percent of their POS data, and specialty apparel companies use a survey-

Nine percent of respondents are currently using decision support/expert systems in their stores, and 26 percent plan to use them. The most enthusiastic segment is convenience stores: 15 percent are currently using these systems in their stores and 47 percent plan to use them.

Of those companies currently using decision support systems, 62 percent are using them for store replenishment, 38 percent are using them for credit authorization, 37 percent are using them for store space allocation and plannogramming, 29 percent are using them for customer sales assistance, and 12 percent are using them for credit scoring. Sixty-seven percent of mass merchants are using them for store space allocation and plannogramming, and 63 percent of department stores are using them for credit scoring.

Fifteen percent of the respondents are currently using local area networks (LANs) in the store, and 20 percent are planning to use them. A survey-high 31 percent of mass merchants are currently using LANs in the store, and 38 percent plan to use them.

Of those using or planning to use LANs in the store, 48 percent are using or planning to use token ring, 17 percent are using or planning to use ethernet, and 41 percent are undecided or using other LANs. Forty-six percent are using or planning to use an IBM network operating system, 19 percent are using or planning to use Novell, and 41 percent are undecided.

Overall, 71 percent of respondents use PCs as the end-user device in their in-store network, as do 95 percent of the respondents with $1 billion or more in revenue. Fifty-seven percent of the companies use terminals and 14 percent use scanners. All the specialty apparel participants use terminals.

Some 70 percent of respondents use dial-up to communicate data to and from stores, 36 percent use leased lines, and eight percent use satellite stations (VSAT). Eighty-one percent of department stores use leased lines, and 61 percent of companies with $1 billion or more in sales use them as well.

Dial-up is also the communications medium of choice for transmitting credit authorization. Overall, 67 percent of the retailers use dial-up for credit authorization, 33 percent use leased lines, and eight percent use VSAT. Fifty-seven percent of $1 billion companies use leased lines, and the majority of department stores and supermarkets lease their lines as well.

SCANNING IN THE STORE

	Participants by 1990 Sales Volume in $ Millions				
	All Participants	Under $100	$100-$399	$400-$999	$1,000– or more
ALL PARTICIPANTS:					
Number of responses to the following:	123	34	41	17	31
Currently scanning	64	14	14	10	26
At POS	59	13	12	8	26
On the shelf/rack	34	6	8	6	14
Incoming backroom	16	3	2	3	8
Outgoing backroom	6	2	-	1	3
Other	2	1	1	-	-
Planning to scan					
At POS	58	21	25	8	4
On the shelf/rack	41	13	17	4	7
Incoming backroom	64	15	23	11	15
Outgoing backroom	39	12	14	6	7
Other	1	-	1	-	-
No plans to scan					
At POS	5	-	3	1	1
On the shelf/rack	27	9	8	6	4
Incoming backroom	23	11	8	2	2
Outgoing backroom	45	13	17	8	7
Other	16	6	4	4	2
CONVENIENCE STORES:					
Number of responses to the following:	10	4	4	1	1
Currently scanning	2	-	2	-	-
At POS	1	-	1	-	-
On the shelf/rack	1	-	1	-	-
Incoming backroom	-	-	-	-	-
Outgoing backroom	-	-	-	-	-
Other	-	-	-	-	-
Planning to scan					
At POS	9	4	3	1	1
On the shelf/rack	4	3	1	-	-
Incoming backroom	5	2	2	1	-
Outgoing backroom	2	-	2	-	-
Other	-	-	-	-	-
No plans to scan					
At POS	-	-	-	-	-
On the shelf/rack	-	-	-	-	-
Incoming backroom	1	1	-	-	-
Outgoing backroom	2	2	-	-	-
Other	1	1	-	-	-
DEPARTMENT STORES:					
Number of responses to the following:	13	5	4	1	3
Currently scanning	8	2	2	1	3
At POS	7	1	2	1	3
On the shelf/rack	2	1	-	-	1
Incoming backroom	1	-	-	-	1
Outgoing backroom	-	-	-	-	-
Other	-	-	-	-	-
Planning to scan					
At POS	6	4	2	-	-
On the shelf/rack	4	3	-	1	-
Incoming backroom	4	2	-	1	1
Outgoing backroom	3	1	-	1	1
Other	-	-	-	-	-
No plans to scan					
At POS	-	-	-	-	-
On the shelf/rack	5	1	2	-	2
Incoming backroom	6	3	2	-	1
Outgoing backroom	7	3	2	-	2
Other	-	-	-	-	-

SCANNING IN THE STORE-CONTINUED

	Participants by 1990 Sales Volume in $ Millions				
	All Participants	Under $100	$100-$399	$400-$999	$1,000 or more
MASS MERCHANTS:					
Number of responses to the following:	17	2	6	3	6
Currently scanning	10	1	2	1	6
At POS	10	1	2	1	6
On the shelf/rack	8	-	2	1	5
Incoming backroom	3	-	1	-	2
Outgoing backroom	-	-	-	-	-
Other	-	-	-	-	-
Planning to scan					
At POS	7	1	4	2	-
On the shelf/rack	4	-	3	-	1
Incoming backroom	10	-	5	3	2
Outgoing backroom	7	-	5	-	2
Other	-	-	-	-	-
No plans to scan					
At POS	-	-	-	-	-
On the shelf/rack	4	1	1	2	-
Incoming backroom	1	1	-	-	-
Outgoing backroom	6	1	1	3	1
Other	2	-	1	1	-
SPECIALTY APPAREL:					
Number of responses to the following:	15	7	6	-	2
Currently scanning	4	2	-	-	2
At POS	4	2	-	-	2
On the shelf/rack	1	-	-	-	1
Incoming backroom	-	-	-	-	-
Outgoing backroom	-	-	-	-	-
Other	-	-	-	-	-
Planning to scan					
At POS	10	5	5	-	-
On the shelf/rack	8	2	5	-	1
Incoming backroom	10	3	5	-	2
Outgoing backroom	5	2	2	-	1
Other	-	-	-	-	-
No plans to scan					
At POS	1	-	1	-	-
On the shelf/rack	4	3	1	-	-
Incoming backroom	3	2	1	-	-
Outgoing backroom	5	3	2	-	-
Other	3	3	-	-	-
SPECIALTY HARDLINES:					
Number of responses to the following:	18	4	8	3	3
Currently scanning	5	1	1	1	2
At POS	3	1	-	-	2
On the shelf/rack	1	-	1	-	-
Incoming backroom	1	-	-	1	-
Outgoing backroom	-	-	-	-	-
Other	1	-	1	-	-
Planning to scan					
At POS	12	3	6	2	1
On the shelf/rack	10	3	4	1	2
Incoming backroom	10	3	4	1	2
Outgoing backroom	6	3	2	-	1
Other	-	-	-	-	-
No plans to scan					
At POS	2	-	1	1	-
On the shelf/rack	5	1	2	2	-
Incoming backroom	2	1	1	-	-
Outgoing backroom	6	1	3	2	-
Other	3	-	2	1	-

SCANNING IN THE STORE-CONTINUED

	All Participants	Participants by 1990 Sales Volume in $ Millions: Under $100	$100-$399	$400-$999	$1,000 or more
SPECIALTY OTHER:					
Number of responses to the following:	20	6	8	4	2
Currently scanning	13	4	4	3	2
At POS	12	4	4	2	2
On the shelf/rack	6	1	3	1	1
Incoming backroom	1	-	1	-	-
Outgoing backroom	1	-	-	-	1
Other	1	1	-	-	-
Planning to scan					
At POS	8	2	4	2	-
On the shelf/rack	6	1	4	1	-
Incoming backroom	10	2	4	2	2
Outgoing backroom	8	3	2	2	1
Other	1	-	1	-	-
No plans to scan					
At POS	-	-	-	-	-
On the shelf/rack	5	3	-	2	-
Incoming backroom	8	3	3	2	-
Outgoing backroom	10	2	6	2	-
Other	3	1	-	2	-
SUPERMARKET/GROCERY:					
Number of responses to the following:	20	3	3	4	10
Currently scanning	19	3	3	4	9
At POS	19	3	3	4	9
On the shelf/rack	14	3	1	4	6
Incoming backroom	8	2	-	2	4
Outgoing backroom	4	1	-	1	2
Other	-	-	-	-	-
Planning to scan					
At POS	-	-	-	-	-
On the shelf/rack	-	-	-	-	-
Incoming backroom	8	1	2	2	3
Outgoing backroom	4	1	1	2	-
Other	-	-	-	-	-
No plans to scan					
At POS	1	-	-	-	1
On the shelf/rack	2	-	1	-	1
Incoming backroom	2	-	1	-	1
Outgoing backroom	7	1	2	1	3
Other	3	1	-	-	2
DRUG/MAIL ORDER/DIRECT MAIL/OTHER:					
Number of responses to the following:	10	3	2	1	4
Currently scanning	3	1	-	-	2
At POS	3	1	-	-	2
On the shelf/rack	1	1	-	-	-
Incoming backroom	2	1	-	-	1
Outgoing backroom	1	1	-	-	-
Other	-	-	-	-	-
Planning to scan					
At POS	6	2	1	1	2
On the shelf/rack	5	1	-	1	3
Incoming backroom	7	2	1	1	3
Outgoing backroom	4	2	-	1	1
Other	-	-	-	-	-
No plans to scan					
At POS	1	-	1	-	-
On the shelf/rack	2	-	1	-	1
Incoming backroom	-	-	-	-	-
Outgoing backroom	2	-	1	-	1
Other	1	-	1	-	-

8. Human Resources Technology

In the store, some 42 percent of respondents use time cards to monitor employee time and attendance. Thirty-three percent use automated time and attendance systems, and 28 percent use electrical time clocks. Mass merchants (53 percent) and supermarkets (70 percent) prefer automated time and attendance systems, as do $1 billion companies (75 percent). In the distribution center, 33 percent of respondents use time cards, 30 percent use automated time and attendance systems, and 28 percent use electrical time clocks. Mass merchants (67 percent) and $1 billion companies (56 percent) prefer automated time and attendance systems. In the corporate office, 52 percent of respondents use time cards, 15 percent use automated time and attendance systems, and 24 percent use electrical time clocks. Mass merchants (54 percent) prefer automated time and attendance systems.

Of the companies not using automated time and attendance systems now, 50 percent plan to use them in the future. One hundred percent of the supermarkets intend to use these systems in the future. The reasons these companies plan to adopt automated systems are to reduce errors in calculating employees' hours (92 percent), reduce paperwork (92 percent), gain control over labor costs (78 percent), gain instant access to labor data (64 percent), and eliminate unauthorized extra time (60 percent).

In the store, 19 percent of respondents are currently using labor scheduling software, and an additional 39 percent plan to use it. In the DC, 15 percent are currently using labor scheduling software, and 20 percent plan to use it. In the corporate office, just two percent are currently using this software, and seven percent plan to use it. Sixty-five percent of supermarket respondents are currently using the software in the store, and 43 percent are using it in the DC.

In the store, 45 percent of labor scheduling software is externally custom-developed. In the DC, 43 percent is externally custom-developed. In the corporate office, 46 percent is internally custom-developed.

Five percent of respondents are currently using decision support/expert systems in human resources decisions; 18 percent plan to use these systems in their HR decisions. Of those companies who are currently using or plan to use these systems in HR decisions, 77 percent have selected them for process planning, labor scheduling and productivity.

EMPLOYEE TIME AND ATTENDANCE (T&A) SYSTEMS CURRENTLY BEING USED

	Participants by 1990 Sales Volume in $ Millions				
	All Participants	Under $100	$100-$399	$400-$999	$1,000 or more
Number of responses to the following:	152	50	48	21	33
In the store					
Automated T&A system	48	9	11	4	24
Electrical time clocks	40	12	11	8	9
Mechanical time clocks	23	8	6	7	2
Time cards	61	20	23	11	7
Other	12	5	3	1	3
In the DC					
Automated T&A system	37	7	10	5	15
Electrical time clocks	35	11	13	4	7
Mechanical time clocks	31	6	12	6	7
Time cards	41	12	13	9	7
Other	5	3	2	-	-
In the corporate office					
Automated T&A system	19	5	6	4	4
Electrical time clocks	31	14	11	3	3
Mechanical time clocks	21	7	8	5	1
Time cards	67	18	23	14	12
Other	13	7	2	1	3

Database Marketing: A New Approach to the Old Relationships

Database Marketing: A New Approach to the Old Relationships

Years ago, retailers knew many of their customers personally. They knew their tastes and needs and preferences, and did their best to make sure those needs were met. But as retailing has evolved, it has become more of an impersonal, transactional kind of activity. Too often, customers pass through a store anonymously, and whether or not they make a purchase, they form little or no relationship with the retailer—no bond, no feelings of loyalty. Ironically, perhaps, there is now a technological solution to this most "human" problem: database marketing.

Database marketing is changing the way in which companies compete for customers and retain their business. Large repositories of consumer POS data are allowing retailers to customize their merchandising strategies at the store level. Retailers such as Neiman Marcus are offering preferred customer and frequent shopper programs to build customer loyalty. Financial services providers are analyzing the investment activities of their customers to develop highly targeted products that satisfy the needs of niches within the customer base. Catalogers such as Talbot's are capitalizing on database marketing by placing personalized messages on different pages of the catalog for different customers based on their purchase history. Magazine publishers are customizing the advertising in their publications for the wants and needs of specific readers, like senior citizens, affluent households, and even farmers.

These marketers are improving the effectiveness and efficiency of their marketing efforts by applying marketing information in new ways. These activities are a logical result of years of direct marketing experience, the emergence of sophisticated data management systems, and plunging hardware costs.

Database marketing can be broadly defined as the use of customer-specific information to get the right marketing information to the right customer at the right time. It provides the ability to measure the effectiveness of marketing programs and monitor them on an ongoing basis. If a program is not addressing the customer's wants and needs, as evidenced by low rates of return, it can be discontinued or modified. Such testing allows retailers to test market new products and ideas in less financially risky environments.

Much like in days gone by, the customer gets the sense that the retailer knows and understands him or her. The benefit to the retailer is a more efficient use of the marketing budget, and in the long run, increased sales. By identifying their customers, assessing their buying habits, targeting them with specific messages, and monitoring the effectiveness of their marketing activities, retailers can realize a greater return on their marketing investment.

A strategy for almost any retailer

Database marketing can have a place in most any retail operation. Indeed, any company with an ability to identify the customer can build a database and segment it.

Several supermarket chains have implemented reward/incentive programs to build customer loyalty. Frequent shopper and preferred customer programs allow retailers to develop a true customer database. Combinations of purchase-triggered coupon/rebate programs, electronic discounts, and "frequency" programs often provide the retailer with the greatest short-term and long-term benefit.

Frequency programs in particular are proving effective in helping to build customer loyalty. Just as important, these programs provide various departments within companies with information about the buying habits of their customers, information that can be shared with the vendors who supply the stores and help underwrite the cost of the programs. In this way, the retailers and vendors build valuable assets—customer databases—allowing them to mount very customized promotions and establish a dialogue with their customers. Such dialogues provide the retailer with

richer data to use in making merchandising and promotion decisions.

Implementation requires a commitment

Database marketing is also known as relationship marketing, and relationships take time to develop. While there can be a quick return on investment—one of the first things you do is stop marketing to unprofitable customers and prospects—implementation does require patience and a commitment. Ernst & Young, which assists retailers in designing, building and implementing database marketing programs, has identified a five-step development and implementation process.

Given that you have a set of strategic business goals, the first step is to identify what data you have available, what data you need in your database to accomplish your goals, and what information you want to get out of it. Generally, you start with as much information as you can obtain. The name and address of the customer and their transaction history—historical data characterizing the exchange process between buyer and seller (e.g., frequency, recency, amount, type of purchase, and source)—are essential to the viability of the database. The more detailed and reliable the transaction data, the more useful the database will be to the retailer. It is this data that allows retailers to isolate the kinds of customers and purchase patterns that drive sales and profits.

Ernst & Young has developed a series of data and logic models known as the Integrated Customer Information System (ICIS). ICIS provides a starting point for addressing questions pertaining to the types, nature and organization of data typically needed in a database marketing environment. Such models usually require some customization. Through careful planning, analysis, design, customization and implementation, state-of-the-art information systems may be developed, allowing marketers to fully leverage the power of database marketing.

The second step in the process is to analyze the data and segment the database. You want to understand who your customers are and what they buy by building profiles of them. Particularly, you want to profile your best customers, then build predictive models of consumer behavior.

selling opportunities. Other marketing programs can be based around demographics such as age, or around events, like changes in the family life

Third, develop marketing programs. Cross-sell programs, in which an offer is made on a product consistent with the customer's lifestyle and consumption patterns following a purchase, are the bread and butter of the retailer practicing database marketing.

These programs resemble "suggestive selling" techniques but leverage historical purchase data to identify more cycle. Other events, such as relocations, suggest the development and testing of a welcome-to-town program.

Fourth, select the individuals for promotion from the segmented database. Customers in the database are typically segmented by age, income, distance from store, lifetime value of a customer—that is, the net present value of all customer-related cash flows—and other indexes of purchase potential.

Fifth, track the promotion and measure its effectiveness. Then feed the results of the promotion back into the database. In this way you form a closed loop, improving the accuracy of your targeting, and improving the effectiveness of the program the next time you execute it.

Costs can vary

Is database marketing expensive? That all depends on your business objectives and the scope of your program. But however much you spend, your program should not be self-contained and isolated within a retail organization. Once you have targeted the customers you want and built up the lifetime value of those customers, you need to support those customers properly with service and responsiveness. In other words, you need to adjust your inventory management, buying and merchandising to respond to the customers who are now asking for products and driving your business. In that sense, the program should be "exploded," or integrated, throughout your company.

To some, this all may sound very futuristic. In the end, database marketing is just a new way to return to an old way of doing business. As one supermarket manager once said, "We need to know what our customers want. That way, the customers shape the store."

9. Emerging Retail Technology

Some 26 percent of retail respondents are currently using direct store delivery systems, 21 percent are using frequent customer/buyer programs, 20 percent are using executive information systems, 20 percent are using customer information management systems, and 20 percent are using wireless RF hand-held terminals.

The biggest issues facing the head of IS in the coming year (fiscal 1991) are: cost control (24 percent), system implementation/integration (18 percent), Quick Response (12 percent), system conversion/upgrade (11 percent), and system development (nine percent). For department stores, the cost control issue is the top concern at 46 percent of the companies. For specialty hardliners, demonstrating the value of technology in meeting business decisions is the number-one concern at 21 percent. And for specialty other companies, systems implementation and integration is the top concern at 36 percent.

EMERGING RETAIL TECHNOLOGY

	All participants	Currently Using	Pilot Testing	Plan to Implement	No Plans to Implement
Executive information systems	100% (143)	20% (28)	10% (14)	28% (40)	43% (61)
Customer information management system	100% (142)	20% (28)	6% (8)	32% (45)	43% (61)
Frequent customer/buyer programs	100% (145)	21% (30)	8% (12)	28% (40)	43% (63)
Wireless RF hand-held terminals	100% (145)	20% (29)	6% (9)	32% (47)	41% (60)
Micro marketing systems	100% (137)	4% (6)	7% (9)	9% (13)	80% (109)
Direct store delivery system	100% (139)	26% (36)	6% (9)	20% (28)	47% (66)
Electronic shelf tags	100% (140)	4% (5)	3% (4)	13% (18)	81% (113)
Wireless POS devices	100% (139)	1% (2)	2% (3)	14% (20)	82% (114)
Interactive promotional video displays	100% (139)	9% (12)	4% (5)	9% (12)	79% (110)
Document scanners/imaging systems	100% (145)	9% (13)	5% (7)	28% (41)	58% (84)
Interactive display systems	100% (138)	6% (8)	3% (4)	10% (14)	81% (112)
Video kiosks	100% (135)	9% (12)	3% (4)	6% (8)	82% (111)
Debit cards	100% (140)	9% (12)	6% (8)	14% (20)	71% (100)
Self checkout	100% (140)	1% (1)	1% (1)	5% (7)	94% (131)
2-dimensional bar coding	100% (138)	3% (4)	2% (3)	9% (13)	86% (118)

( ) = Number of responses to this question.

Silo Moves to Full VSAT Network: Abandons Hybrid System of Satellite and Land Lines

Three years ago, Alan Weingarden did not believe that a chain the size of Silo could find it cost-effective to have a full-scale VSAT network.

Weingarden, the vp of information services and technology of Silo, the Philadelphia-based consumer electronics chain, had good reason to feel as he did. "At the time, VSAT vendors were not talking to companies our size. They were not interested in selling to us. But that's changed."

Silo, with annual sales of $1 billion, has 230 stores averaging 8,000 to 18,000 sq. ft. Though by no means a small chain, it is not nearly as large as the huge companies that have led the way in VSAT, such as Kmart and Wal-Mart.

Nonetheless, three years ago, Weingarden was dissatisfied with Silo's leased line network, and the high land-line costs that came with it.

He contracted with a third-party provider who created a hybrid internal communications network configuration consisting of a shared hub and 36 VSATs in strategic market locations, with tail circuits connecting the dishes to other stores.

The dial-up and leased lines used in the tail circuit connection gave the appearance of a total leased network. But there were problems, says Weingarden, not the least of which was that "all those tail circuits were a bear to manage."

"Also, the costs of the land lines were escalating beyond reason. And we weren't happy with the performance, especially of the dial-up lines, which would drop occasionally."

Consequently, about a year and a half ago, Weingarden began looking for a vendor to provide a full VSAT network. Six months later, he settled on a Skystar interactive data communications network from GTE Spacenet, McLean, Va.

The previous supplier, which had been providing the VSAT elements of the existing hybrid system, was one of the first vendors considered but was rejected because of cost, Weingarden says. He explains that the previous vendor's fundamental architecture for bandwidth than Silo requires, and would only make sense to use in a shared-hub arrangement.

On the other hand, GTE Spacenet offers a smaller building block, 56 Kbps outbound channels, which brings down the cost considerably, and makes it feasible for a company Silo's size to afford a private hub.

Why was a private hub deemed important? "We think it offers better control and reliability than a shared hub," Weingarden says. "Having already been through the shared hub experience with the third-party provider, we didn't want to go through it again."

GTE Spacenet also wound up helping in an unforeseen way. In the midst of all the changes, Silo's third-party provider folded. The new network had to be installed quickly, and it was. GTE Spacenet installed a hub and replaced the 36 existing VSAT dishes within four weeks. "No one thought it could be pulled off that quickly," Weingarden recalls.

Dishes were rolled out to Silo's other stores in less than a year. "We did some initial testing, but we moved quickly," Weingarden says. "We were satisfied VSAT would work. If we had not had a previous network, I'm not sure we would have moved as fast."

As it was, when the rollout slowed at all, it slowed because of bureaucratic difficulties involved in obtaining building permits in certain states and localities, and not by any technical challenges.

All told, the cost of the complete VSAT and hub installation was somewhere in excess of $4 million, Weingarden says.

The positive results are many. Telecommunications costs are now down in many instances; flattened in others. In all cases, "the costs are predictable," Weingarden says. "We've rid ourselves of the hassle of trying to keep up with the lowest tariffs."

Reliability has improved substantially with the new network. "We don't have the long outages that we used to have with land lines," says Weingarden.

There is also unprecedented flexibility in how much bandwidth can be used. "During the peak season, GTE Spacenet has allowed us to supplement out network with additional 56 Kbps channels," Weingarden says. the private hub, which uses 512 Kbps outbound channels, is much more "Their architecture is modular enough to allow us to do that."

Silo is using its VSAT network for on-line credit and debit authorizations, intracompany communications, on-line POS polling, and downloading price lookup files, Weingarden says. The network also enables a shared database of help screens to better manage customer service and simple in-store repairs.

Anticipated future applications include broadcast video and training, and Electronic Data Interchange, he says.